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WALTER REED, M.D., M.A., LL.D.

MAJOR MEDICAL CORPS, U. S. ARMY

CLINICAL MEDICINE AND SURGERY

VOLUME 37 NOVEMBER, 1930 NUMBER 11

Major Walter Reed

WHEN most people think of soldiers and their occupations, they envision shell-torn battlefields and reeking trenches. Even in connection with the Medical Corps, they see regimental aid stations in dugouts and battered ambulances swaying perilously over unspeakable roads without lights.

But, indispensable as is the work of the soldier in war, the peace-time exploits of a number of Army officers have overshadowed their accomplishments in conflict. Some of the greatest engineering works of all time have been accomplished by the Army; and the roster of the Medical Corps contains such great names as Sternberg, Leonard Wood, Gorgas and Walter Reed.

Walter was born in Belroi, Gloucester County, Virginia, on September 13, 1851, his father being Lemuel S. Reed, a Methodist minister.

He attended the University of Virginia, from which, in 1869, he received his degree as a Doctor of Medicine, at the age of seventeen, being the youngest student ever graduated from that medical school. The same year he was given a second similar degree from Bellevue Hospital Medical College, New York.

For five years, Dr. Reed did clinical work in King's County Hospital, and other institutions in New York and in 1875 he entered the Army as an Assistant Surgeon.

For the next fifteen years, Reed went through the usual experiences of a young army surgeon, serving at various military posts, chiefly on the frontier.

In 1890 he was ordered to Baltimore for station, where he showed his caliber by utilizing his opportunities for working in the laboratories of Johns Hopkins University, chiefly in bacteriology, under that grand old scientist, William H. Welch. His first scientific paper dealt with the contagiousness of erysipelas, and was followed by many others. So well did he improve his time that, three years later, he was appointed curator of the Army Medical Museum and professor of bacteriology and pathology in the newly-established Army Medical School. From this vantage ground he pursued epidemics of various kinds to their lairs and studied their workings.

Then came the Spanish-American War to upset things in general and, among other important duties, Reed was made head of the famous board, the other members of which were Vaughan and Shakespeare, to study the causation and spread of typhoid, which was working ghastly

havoc among the raw troops in the southern camps.

The monumental report of this board was not yet completed when disease conditions in Cuba became so menacing that something had to be done about it, and Reed was again the logical man to head a board for the study of infectious diseases, especially yellow fever.

This fearful scourge had devastated the West Indies, Central and South America and the southern United States for centuries, even attacking Philadelphia in a virulent form in four epidemics (1693, 1699, 1762 and 1793), in the last of which Dr. Benjamin Rush practically ruined his professional reputation by excessive bloodletting and administration of mercury. He declared that the disease was caused by spoiled coffee.

Various theories as to the cause of yellow fever had been advanced, from time to time. As early as 1848, Dr. Josiah Clark Nott, of Mobile, Ala., had suggested, in the *New Orleans Medical Journal*, that some insect might play a part in its dissemination; and Dr. Carlos Juan Finlay, in 1881, had even advanced the hypothesis that a mosquito (the *Stegomyia fasciata*) might be the carrier. These ideas were, however, discredited or forgotten in 1900, when Reed went to Cuba, for, three years previously, Sanarelli had announced the *Bacillus icteroides* (*Bacillus X* of Sternberg) as the causative organism, and this finding was generally accepted.

The other members of the Board or Commission, of which Reed was head, were Carroll, Agramonte and Lazear, all Army surgeons and competent and well-trained scientific investigators. The story of how they thoroughly and finally disposed of Sanarelli's bacillus and established the *Aëdes egypti* or *Stegomyia fasciata* as the carrier of an ultramicroscopic organism or a filter-passing virus of yellow fever is one of the most romantic in the history of Medicine.

The valor shown by Carroll, who for years had been Reed's laboratory assistant and was the first to submit to the bite of an infected mosquito, and by the enlisted men of the Hospital Corps who volunteered for these experiments, actually surpassed that of many who have since been decorated with the Medal of Honor. Carroll survived his attack of yellow fever, but Lazear, who was accidentally bitten, gave his life in the performance of his duty.

With the results of the three or four carefully worked out and controlled cases which proved his point, Reed was about to make a flying trip to the United States, to consult with the surgeon general and with Dr. Welch and to report his findings to the American Public Health Association; but first he called upon General Leonard Wood, then military governor of Cuba, and asked for $10,000 to finance the completion of his experiments. Wood's keen medical mind saw the importance of the work and the request was readily granted.

The results of the work of this Board are best attested by the fact that, while there had been an epidemic of yellow fever in Havana *every year* for nearly a century and a half, *no case* of the disease appeared in Cuba from 1901 to 1905—the period during which the Americans were in control of sanitary measures—and it is now very rare in those regions where its ravages were formerly most frequent and terrible.

Upon the completion of these epoch-making researches, in 1901, Reed returned to his teaching in the Army Medical School and Columbian University, for which work he appears to have had a natural aptitude and in which he was peculiarly successful.

The next year, Harvard University conferred upon him the honorary degree of Master of Arts, and the University of Michigan gave him the title, LL.D.

He did not, however, enjoy these titles for long. In November, 1902, he suffered

an attack of appendicitis and was operated upon. But his strenuous labors had sapped his powers of resistance and he died of peritonitis on the 23rd of the month, before action was taken on the recommendation by the Secretary of War that he be made assistant surgeon general, with the rank of Colonel.

In person, Major Reed was slender, alert, with mobile features and sparkling blue eyes. He was a tireless and systematic worker, an able organizer and was possessed of the true scientific spirit in large measure.

Professor Welch said of him: "Dr. Reed's researches in yellow fever are by far the most important contributions to science which have ever come from an Army surgeon." And General Wood declared: "I know of no man on this side of the world who has done so much for humanity as has Dr. Reed."

The Army's greatest hospital, in Washington, is named in his honor; his birthplace has been purchased by the Virginia Medical Society and dedicated as a permanent memorial; and over the last resting place of his ashes, in stately Arlington, among our other departed heroes, stands a shaft bearing the words used by President Eliot, in conferring his Harvard degree:

"He gave to man control over that dreadful scourge, yellow fever."

The world is blessed most by men who do things, and not by those who merely talk about them.—James Oliver.

Advantages of Parenteral Medication

THE administration of drugs by mouth goes back to the dawn of history, and the method possesses so many advantages that, after all these years, most medicines are still given in this ancient manner.

If, then, oral medication has met the requirements of physicians and patients reasonably well, for thousands of years, we must have valid and clearly-explainable reasons for changing to some other plan for introducing remedial substances into the human body.

The first point in favor of parenteral medication is that, when we inject a drug intravenously, intramuscularly or hypodermically, we know just how much of a dose is going to be effective, which we never could tell when the drug was given by mouth, because that depended upon the condition of the patient's gastrointestinal system and his absorptive powers, to say nothing of our guesses as to the potency of the preparation used. This last factor is taken care of by the standardization of practically all medicaments intended for injection.

The second point is rapidity of action. A dose of laudanum, for example, given by mouth, might begin to exert its effect in a half an hour or more: A hypodermic injection of morphine takes hold in about ten minutes. The same thing is true of practically all drugs given parenterally.

When biologic preparations — serums, vaccines, endocrine extracts, etc.—came into use, it was believed that many—probably most—of them were inert when given by mouth and produced their characteristic effects only when injected. Then came the various arsphenamines, all of which had to be administered with a needle. These two new developments undoubtedly laid the foundation for the large and increasing popularity of parenteral medication.

The whole realm of local, regional and spinal anesthesia absolutely depends, of course, upon various types of injections.

The development of non-specific therapy, with its remedial reactions of fever, necessitated the use of injection methods, in order to be effective.

Then, too, many drugs produce quite different effects when they are injected than they do when given by mouth, and this opens a whole new and fascinating field for study.

So far we have considered only the ad-

vantages of a purely therapeutic nature which accrue from parenteral methods of treatment; but there are others, which apply to both the physician and the patient.

From the patient's standpoint, the greater promptness of the cure of his condition, when drugs are injected, is a very notable step forward. He is grateful to be relieved of his disability or distress in half or even less time than would be required under the older methods, even if the treatment is more expensive. If he is a wage-earner, these methods may, in the long run, prove the more economic, because he is sooner ready and able to return to his work.

The outstanding professional advantage, for the physician, is that he is able to keep his patient under control and observation much more readily than he could ever do when he was prescribing medicines out of a bottle, to be taken with a teaspoon of uncertain size. When a man is receiving an injection of some sort, every few days, the doctor has an opportunity to see him frequently, observe the action of the drug and study the progress of his case closely, changing the remedies or the dosage or both, as the patient's condition indicates.

The sick man receiving injections does not know what is being given to him, and if he did, he could not, as a rule, inject it into his own body; with the notable exception of insulin, which is usually taken in this way and may change, to some extent, the validity of that one statement just made.

Moreover, the prescription, like one for a physical therapy treatment, cannot be refilled at the corner drug store without the physician's knowledge or consent, nor peddled to the patient's friends without regard to ethics or common sense. These two points are of no small moment, to both parties to the transaction.

From an economic standpoint, parenteral medication is to the physician's advantage because, while human psychology remains as it now is, ninety percent of patients will pay more gladly, more promptly and more abundantly if the doctor *is doing something for them*, than they will if he merely looks them over and gives them a prescription. An injection impresses most sick people as a *quid pro quo* and as an evidence of competence and determination to produce results, on the part of the medical attendant, and thus and in other ways produces valuable psychic results, in addition to its physiologic effects.

Although, in the rural districts, there are still many people to whom the word "injection" means nothing but morphine, the number of these is steadily growing less; and in view of the fact that many modern methods of treatment are impossible without the use of syringe and a needle, while a number of the older remedies are more prompt and reliable in their action when given in this manner, no physician can consider himself abreast of the times, from the professional or economic standpoint, who has not adopted parenteral medication as a part of his daily work.

We must adjust the business of medical practice as soundly as we do the technic of applying science to the cure of patients.—Wilfred S. Reynolds.

Individualism and Cooperation

WE HEAR a great deal of talk, to the effect that the United States is a nation of individualists; but one wonders whether the talkers ever gave any real thought to what an individualist is, or might be, if there really were such a human animal.

For, be sure, the term, animal, would be justly applicable to such a being, because all of the things which distinguish us from the brute creation are connected with the relationships we bear to others and the activities we undertake in conjunction with them.

Perhaps the nearest approach to human individualism, in this twentieth century, is found among the Bushmen of the Kalahari Desert (described in Clin. Med. & Surg. for Oct., 1929, p. 722). They build no

towns, nor even houses; undertake no co-operative works; have no form of government. In fact, their social customs are less well organized than those of some of the baboons.

Go back as far as one will in history, and always the things which have contributed to human welfare and progress have been those which men accomplished when working together toward a common end. Individualists did not make "The glory that was Greece and the grandeur that was Rome"; neither the great, vanished civilizations of Assyria and Babylon; of Thebes and Carthage; any more than they are responsible for London, Paris or New York. All these mighty works were done by people who, voluntarily or of necessity, sacrificed some of their personal prerogatives to the common good.

The astonishing progress in Medicine and general science which has been made in the last hundred years, has been possible because men have learned to cooperate in attacking the problems presented to them. What would Pasteur or Koch; Ehrlich or Carrel; Noguchi or Walter Reed have accomplished, alone and unaided? They would have struggled with the ignorance, inertia and superstition of their contemporaries, as did Galileo, Vesalius and Paré, and centuries would have been required to reap the harvest whose seeds they sowed.

So essential is cooperation and mutual adjustment in the present scheme of things, that those who attempt to practice strict individualism have to be locked up in jails or in institutions for the mentally unhinged.

In the world of thought, every man is, and should be, an individualist; and the relationship between a physician and his patient is losing much of its beauty and power in proportion as it is becoming socialized.

But, in the realms of the desires, emotions and physical activities, there must be curbs and checks and mutual strivings, if this fabric which we call civilization is to persist and grow in strength and usefulness.

The man of Medicine must, in his clinical relationships, work very largely alone. But if the profession is to take the place in the body politic which, for the best interests of humanity, as well as for its own sake, it must come to occupy, it is essential that every member of the group give his sincere and cordial support and his wisest counsels to the organizations of his confreres which, in an age of cooperative effort, are alone able to make the adjustments that are required.

The degree of our happiness is determined by our ability to forget ourselves and turn our attention outwards to the needs and happiness of others.—Bishop Irving S. Cooper.

Spastic Constipation

ABOUT 99.44 percent of lay persons, when they decide that their bowels are not moving so freely as they should, will take a "physic," with more or less prompt immediate results; their appreciation of possible remote effects being, naturally, nil.

If they have been reading the flamboyant advertisements of the patent foods, which adorn the pages of the household and general magazines, they proceed to fill their stomachs with bran and other bulky forage, comforting themselves with a consciousness of virtuously hygienic living.

This course of action, on the part of a layman, is to be expected; but when a majority of physicians follow such a practice (as they undoubtedly do), both in their own cases and those of their patients, it suggests that they have not been reading very widely or that habit is overriding intelligence.

The generally used laxatives and purgatives and the articles of diet containing a high percentage of cellulose have the common property of stimulating the activity of the large or small intestine when either of these is sluggish, and some of the drugs are universally applicable in those conditions

where fermenting material is causing symptoms of irritation and needs to be eliminated promptly. Others are of great value in the cases of chronic constipation, due to a lack of tone in the musculature of the whole or a part of the intestinal canal.

But in these days of emotional and mental stress and the physical striving for ever-increasing speed in all lines of activity, another form of chronic costiveness is assuming decided importance—*spastic constipation*— and its proper treatment is almost diametrically opposite to that of the atonic type.

The patient with spastic constipation is apt to be a lean, intense, hyperactive and vagotonic individual. He will probably complain of a good deal of griping in his bowels, with rumbling and splashing, and will exhibit the symptoms of hyperchlorhydria. He is likely to declare that a small amount of food seems to fill him up and that he sweats freely. If he has paid any attention to his stools, he will report that they are of small caliber, when solid.

A patient presenting these signs and symptoms is entitled to an x-ray study of his gastrointestinal canal—including, probably, a barium enema—before he is given the usual stimulating laxatives, which, if his colon is spastic, will only make him worse, by increasing the irritability which is already excessive.

In positive cases the roentgenograms will show hypermotility of the stomach and small bowel, with more or less extensive contraction of the colon, at times almost obliterating its lumen. The appearances are decidedly characteristic, and no competent roentgenologist should have difficulty in confirming the diagnosis.

The treatment consists of measures to reduce the general high-strung condition of the patient and to soothe the overactive bowel. The drive of work or play should be slowed to a reasonable pace; abundance of sleep and rest, in the recumbent position, should be insisted upon; the diet should be bland and as free as possible from roughage and condiments; stimulating purgatives and water enemas should be forbidden; a warm tub bath, at bedtime, will often aid relaxation.

Further therapeutic measures include the judicious administration of belladonna, atropine or hyoscyamine, in doses suited to the individual; the oral use of mineral oil, either plain or in emulsion; high enemas of three ounces (100 cc.) of a warm, saturated solution of magnesium sulphate (whose local action is quite different from that when it is given by mouth), introduced very slowly and gently; and enemas of six to eight ounces of warm cotton-seed oil, given at bedtime and retained overnight.

We should, further, not forget those forms of constipation which are caused by spasmodic contraction of the anal sphincter, resulting from painful lesions in that region, such as fissures, fistulas and acute cryptitis. These cases are promptly relieved by correcting the pathologic conditions which underlie them.

The successful physician will remember that a "case of constipation" is not such a simple affair as it may appear, at first blush, and that the etiologic factors may be decidedly varied and the remote effects of such serious consequence as to merit his keenest professional attention.

LEADING ARTICLES

Parenteral Medication*

By W. Forest Dutton, M.D., *Amarillo, Texas*

PARENTERAL (hypodermic, intramuscular and intravenous) medication had its genesis with the introduction of the hypodermic syringe, which was brought into use in Europe by Francis Rynd (1845), Charles-Gabriel Pravaz (1851) and Alexander Wood (1855); and in America, by Fordyce Barker (1856) and George Thomson Elliot (1858). Tablet triturates for this and other purposes were invented and introduced by Robert M. Fuller, of Philadelphia, in 1878.

Magendie and Gaspard revived experimental intravenous injections of drugs in 1823. G. B. Halford, of Melbourne, Australia, reintroduced Fontana's injections of ammonia in snake-bite in 1869 to 1873. A. S. Landerer introduced hetol injections in phthisis (1892); Guido Baccelli, injections of quinine in malarial fever (1890) and of corrosive sublimate in syphilis (1894); and injections of collodial metals (collargol, etc.) were brought into use by Benno Credé, in 1901.

In 1895, Carlo Forlanini introduced the treatment of phthisis by artificial pneumothorax. The principle of employing deep injections of alcohol in neuralgia was first applied by Karl Schloesser, in 1903.

Intravenous injections of drugs (1656) and transfusion of alien blood (1665-67) had their empiric origin in the seventeenth century, but it remained for the first quarter of the twentieth century to develop their scientific application.

George W. Crile introduced highly original experimental researches on hemorrhage and transfusion in 1909, and this, together with the introduction of Salvarsan by Paul Ehrlich (1910), gave added impetus to parenteral medication.

Previous to, during and subsequent to the work of Crile and Ehrlich, the domain of experimental pharmacology and therapeutics had added new territory of intrinsic value. Notwithstanding the highly original and invaluable contributions of American scientists, in this period, the pseudo-scientific propaganda of foreign elements was accepted at its face value by unthinking followers of the German school of teaching.

In view of the frequent employment, at present, of injections of medicaments into various parts beneath the surface of the integument, by means of a hollow needle attached to a syringe, a detailed description of the technic of such administration is important, and is of special interest because the layman has a peculiar aversion to parenteral therapy, due to the attendant pain and its proverbial dangers, which can be avoided by proper methods.

Hypodermic Injection

The hypodermic, or subcutaneous, injection is an introduction of medicaments into the loose areolar tissue beneath the skin. In this manner the agent, if soluble, is introduced directly into the lymph stream and enters the blood by diffusion through the walls of the capillaries. For this reason, the effect of hypodermic injections can usually be observed within a few seconds, as in the injection of epinephrin, and within thirty minutes to one hour, as in the administration of morphine. Absorption is slow in conditions of great depression of the circulation and of lymph stagnation, as in heart failure and dropsical areas.

*This article is entered in the prize competition on Parenteral Medication. See the voting coupon on adv. p. 44.

Fig. 1: Technic of Hypodermic Injection.

Insoluble, nondiffusable and colloidal bodies are absorbed very slowly from the subcutaneous tissue. Such agents as antitoxic serums and insoluble mercurials produce severe local irritation and are inapplicable for subcutaneous administration.

Hypodermic medication is *indicated* when the medicine cannot be swallowed, on account of unconsciousness, or retained, by reason of vomiting; when rapidity of action is needed; or when the agent is rendered useless by the action of the digestive juices. The method is *contraindicated* when the medicament is severely irritant, acid or alkaline and liable to produce pain, inflammation, abscess formation or necrosis.

The solutions should be perfectly clear, neutral in reaction, isotonic with the serum, and all substances should be soluble in water or other bland fluid. The bulk of the fluid should be not more than 2 cc, except in subcutaneous infusions, nor should the solution be concentrated. All solutions should be sterile.

The dangers from hypodermic injections are: injections into veins, sloughing and infection.

Technic: The syringe, preferably of glass, with its piston working smoothly, and a sharp, rustless needle must be sterile and in good condition.

The favorite sites for injection are the arm, near the insertion of the deltoid muscle, the subscapular and subclavicular regions, the abdominal wall and the thigh.

The skin at the point of injection should be thoroughly cleansed, using an antiseptic soap and water or iodine or ether, followed by sponging with pure grain alcohol.

The skin is grasped firmly between the ends of the forefinger and thumb, raising a fold. The syringe should be held firmly with the thumb and fingers of the right hand and parallel to and touching the skin (see Fig. 1). This permits the movement of the syringe in any desired direction—a technical advantage. The point of the needle is inserted rapidly at the base of the fold into the loose subcutaneous or areolar tissue. The plunger of the syringe should be slightly withdrawn, in order to observe that a blood vessel has not been punctured. Then the injection is made slowly. After the withdrawal of the needle, the puncture should be mopped with alcohol.

Intramuscular Injection

Intramuscular injection is the introduction of material into the muscular tissue

Fig. 2: Technic of Intramuscular Injection.

or between layers of muscle (epifascial injection). It has the advantage of rapid ab-

sorption, with less liability to abscess formation or necrosis, or from the depositing of irritant material. If not applied with proper technic, it has the disadvantage of accidental intravenous injection, followed by suddenness and intensity of action, with possible dangerous complications. Diphtheria and tetanus antitoxin, etc. are more readily absorbed, and the insoluble mercurial and bismuth preparations, emetin, etc., on account of their irritant nature, are better tolerated, when administered intramuscularly.

Technic: The syringe and needle should be selected according to the amount to be injected and to the type of buttock (in which locality these injections are generally given), and should be examined for defects before sterilizing. The solution should be sterile and suitable for use at body temperature. The syringe should be inverted and the piston withdrawn sufficiently to allow 1 or 2 cc. of air to enter the barrel, and again inverted before injection. The air, following the fluid, drives it farther into the tissues and tends to prevent pain.

The syringe should be held as shown in Fig. 2, the weight resting on the tip of the little finger. When ready to insert the needle, the weight is shifted from the little finger to the thumb, index and middle fingers; then needle is thrust to the desired depth with a firm, bold pressure.

In order to avoid serious accidents that may arise through trauma of blood vessels or the sciatic nerve, introduce the needle into the outer and upper quadrant of the buttock, near its inner angle. Aspirate from the deep tissues for blood and, if none is found, the injection should then be made. After the withdrawal of the needle, the site of the injection should be mopped with a pledget of cotton soaked in grain alcohol and the area massaged for two or three minutes. Excessive pain caused by faulty technic may be relieved by hot compresses of magnesium sulphate solution.

Intravenous Therapy

The intravenous administration of medicaments has now attained a position of considerable importance as a rational therapeutic procedure. The basic principles underlying this method, the medicaments and dosage and experimental and clinical evidence, have been fully described in other writings.

It is obvious that the intravenous administration of certain agents is of great value in restoring blood volume and overcoming dehydration in hemorrhage, shock and toxemia; in dysentery, gastroenteritis of infants, and Asiatic cholera; in hyperemesis of pregnancy; in operative procedures, before, during and after; in the grave acidotic crises of diabetes mellitus; in osmotherapy; in protein therapy; in serotherapy; and in chemotherapy.

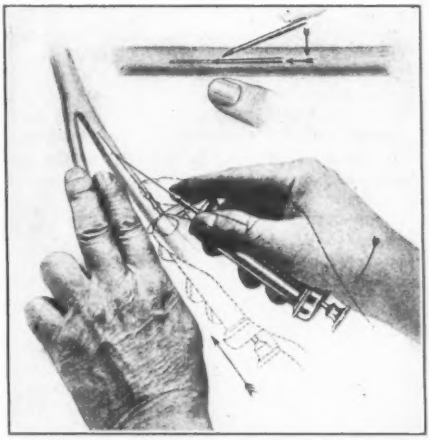

Fig. 3: The diagram graphically illustrates the correct manner of holding the veins and inserting the needle through the wall of the vein into the lumen.

Contraindicated for intravenous use are: (1) imperfectly purified substances; (2) substances of complex composition; (3) substances which do not make clear solutions; (4) solutions which do not have a reaction of pH 7.4 (except those used in

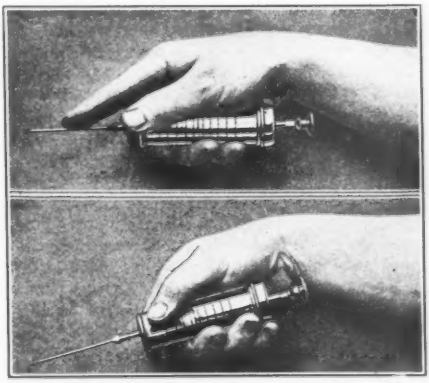

Fig. 4 (above): Syringe technic. Correct way of holding syringe for insertion into vein. The index finger guides and strengthens the shaft of the needle.
Fig. 5 (below): Syringe technic. Incorrect way of holding syringe for insertion of needle into vein.

osmotherapy); (5) suspensions, unless extremely fine and dilute; (6) emulsions, fats and oils; and (7) potent pharmacologic agents, having several different major actions.

When the common modes of administration are effectual, intravenous therapy should not be used.

The administration of proteins to hypersensitive patients, or of drugs to those having an idiosyncrasy, is bad practice, no matter what the mode of administration. Good judgment is imperative, whatever method of therapy we set out to apply. Nevertheless, the risks of intravenous therapy in: (1) greatly weakened subjects; (2) in the aged; (3) in subjects of hypertension, arteriosclerosis or cardiac disease; (4) in patients known or suspected to be hypersensitive to one or more proteins, presenting such reactions as asthma, hay fever or urticaria, or known to have a drug idiosyncrasy, have been grossly exaggerated.

Voluminous vein infusion in dropsy, pulmonary edema and markedly cardiac insufficiency is definitely contraindicated.

Fig. 6: Intravenous Injection with a Syringe.

Technic: The superficial veins at the bend of the elbow are usually the vessels of choice. There is no special advantage in an injection made in this particular area, and if, for any reason, the operator finds it more convenient, he may choose the internal saphenous at its crossing of the internal malleolus, the radial, the femoral or the posterior ulnar veins, or even the external jugular vein. In infants the external jugular vein or the superior longitudinal sinus is regularly selected.

An all-glass, 10 cc. syringe, fitted with a 1½ inch, 22- or 24-gage, rustless needle of standard make, should be selected. They may be sterilized by boiling water, or disinfected with pure grain alcohol.

For disinfection of the skin, grain alcohol,

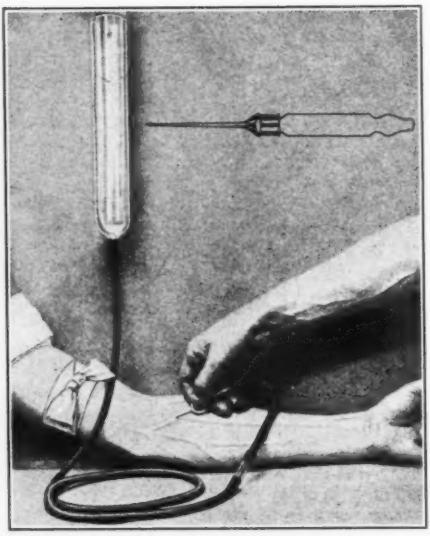

Fig. 7: Method of injecting intravenously by gravity. (1) The tourniquet is in position, and when the needle is inserted into the vein and blood flows back by the glass windows, it is removed and the injection made. (2) Luer observation tube and needle (insert).

preceded by ether, is preferred to soap and water or iodine. Partial anesthesia of the skin may be produced by painting carefully, with a brush, the site of injection with a mixture of camphor 2 drams (8 Gm.), menthol 1 dram (4 Gm.) and chloral hydrate 1 dram (4 cc.).

It is customary to compress the arm, in order to make the selected vein more prominent and, as an ordinary rubber elastic or a soft rubber catheter is likely to be at hand, this is usually employed, but is not, as a rule, necessary, as the assistant, or the patient himself, can compress the veins sufficiently by manual pressure, the arm meanwhile being stretched comfortably upon a cushion, so that the venous return in the upper arm is obstructed, although the arterial pulse may still be felt at the wrist. If the forearm is stroked upward at the same time, the veins will stand out even more prominently.

The practiced operator does not need to see the vein; the "eyes in the tips of his fingers" can do this for him; if he feels it, every requirement can be met. When the vein is located, the skin over it should be stretched between the thumb and forefinger of the left hand, as stretching it renders the skin less sensitive—even partially anesthetic—and also causes the vein to

become enlarged on the side toward the heart.

The syringe should be held firmly in the right hand with the index finger bracing the shaft of the needle (see Figs. 3, 4 and 5). After making the puncture and entering the vein, the barrel of the syringe should be shifted to and supported by the fingers and thumb of the left hand. The piston is slightly withdrawn, but released the instant blood appears in the syringe. Pressure on the arm is released. Then the flange of the barrel is grasped by the index and middle fingers of the right hand, the thumb pressing the knob of the piston, and the injection made *firmly and slowly* (see Fig. 6).

A gravity apparatus (Fig. 7), for the slow, subcutaneous or intravenous administration of large quantities of solutions, is described in detail by Friedell, Lewisohn and by Dutton, in their writings on the subject.

The history of American Medicine cannot be written without including the experimental research and practical application of parenteral therapy, as advanced by American medical practitioners. It is also true that much of great value has been contributed by the obscure, hard-working physician, whose labor has been altruistic and individualistic. Practical parenteral therapy was instituted and systemized by American medical scientists. Why not render unto them the credit to which they are justly entitled?

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706 Fisk Med. & Prof. Bldg.

Parenteral Anesthesia with the Barbiturates*

By D. L. Tabern, Ph.D., *Lake Bluff, Ill.*

WITHOUT question it is of primary importance to spare the patient the physical agony of an operation; but if, in addition, we can avoid the mental agony of the periods before and after, we shall have taken still another step forward.

It is quite generally agreed that, for routine use, volatile anesthetics, such as ether, nitrous oxide and ethylene, are the safest and have the added advantage that they can be given or withdrawn instantly, to meet the exact needs of the patient at the moment. Yet the period preceding loss of consciousness is, for many, a period of severe psychologic shock, dreaded beforehand and living as an unpleasant memory long after.

Through recent advances in the field of synthetic organic medicinals, products are now becoming available which make it possible to place the patient, while still in his room—without his knowedge, if desirable—in a state of calm sleep. During this he remembers nothing, but can be aroused for such general cooperation as is necessary; he comes to the operating table devoid of fear and tension. The amount and concentration of added anesthetics are then but a fraction of those normally required; because of this, nausea is seldom encountered, and the patient has the benefit of an added period of sleep and relaxation before he returns to full consciousness.

The same points apply with equal or greater force when local or spinal anesthesia is to be employed, for these new agents are definite anti-convulsants and thus "detoxify" the commonly employed local anesthetics.

These remarks refer to certain newly synthesized barbiturates.[1]

Two Types of Barbiturates

Few groups of compounds have been more intensively studied, chemically and

*This article is entered in the prize competition on Parenteral M-dication. See the voting coupon on adv. p. 44.

pharmacologically, than have the barbituric acids, yet in practice the different members of the series are all-too-frequently employed indiscriminately. Fitch, Waters and Tatum[3] have recently demonstrated that the barbituric acids may be classified as long- or short-acting. In the first group are found butyl ethyl barbituric acid (Neonal), diethyl barbituric acid (barbital or Veronal), and most of the others commercially available in the past. In the rapid and short-acting group we find Nembutal 844 [Sodium ethyl-(1-methyl butyl) barbiturate] and the German introduction, Pernocton (sec-butyl B-brom propenyl barbituric acid). Amytal (ethyl i-amyl barbituric acid) occupies an intermediate position.

Members of Group I are excellently suited for general use in the production of restful sleep and in the treatment of neurotic conditions where a mild but prolonged action is desired. For instance, it is not uncommon for a single therapeutic dose to facilitate rest on the second night after its administration. Choice among the individual members of the group depends upon the conditions at hand. Barbital serves satisfactorily and is relatively inexpensive. Certain higher homologs are effective in much smaller doses; and, if we can draw conclusions from animal experimentation, they have a greater margin of safety in use.[4] The reputation of phenobarbital (phenyl ethyl barbituric acid) in epilepsy is too well known to require comment.

Members of Group II are effective in still smaller doses and are characterized by brief but intense action, with a wide safety margin. These properties are exactly those desired in a product to be used as an intravenous anesthetic or as a preanesthetic sedative. The small amount administered means rapid elimination, with a minimum of strain upon the excreting mechanism, and the shorter period of action avoids the necessity for careful nursing for hours after the operation.

There seems to be an interesting parallelism between elimination and effectiveness. Barbital and phenobarbital are excreted unchanged in the urine, to the extent of more than 70 percent. Nembutal and Amytal, on the other hand, are apparently almost completely decomposed in the body.

While, as early as 1907-8, Bruneri, Pokitolo and Stossman[5] employed barbital in conjunction with chloroform anesthesia, it is only within the last five years that the barbiturates have been intensively studied for this purpose. Somnifene and Pernocton seem to have been most employed on the continent; and Amytal and, more recently, Nembutal in America.

In laboratory animals, barbiturates have been found to serve well as general anesthetics. In my own experience, from 30 to 45 mg. per kilogram of Nembutal, given intraperitoneally, intravenously or by stomach tube, produces deep sleep within a very few minutes, without serious effect on blood pressure or respiration. Even radical operations may be performed without apparent pain. Some four hours later the animals return to normal and evidence no effect of the administration. During the past six months, in two large research organizations in Chicago and St. Louis, more than a thousand dogs have been injected with approximately the above dose of Nembutal, with excellent results, in operations lasting up to two hours and with a negligible number of fatalities. The use of such a product obviously offers interesting possibilities in small-animal veterinary practice and in pharmacologic studies.

Barbiturates as Anesthetics

Attempts to employ barbiturates, particularly Amytal and Nembutal, as general surgical anesthetics in human beings have not been uniformly successful. This is due, in part, to the fact that individuals vary remarkably in their reactions to them, and an individual may, himself, vary from time to time, depending upon his emotional state. If sufficient quantities of barbiturates are given to insure complete anesthesia in the majority, a period of severe incoordination may ensue during recovery. Deaths from very large doses are not due to the direct toxicity of the drug, but rather to pulmonary complications associated with a slowing down of respiration and other body processes. There is the further disadvantage that, once given, it is impossible to withdraw the anesthetic, should this become desirable.

These facts do not rule out the use of Nembutal, Amytal and Pernocton, in carefully selected cases known to be proper subjects for the barbiturates or where other indications make them of particular value.

It is now almost universally agreed that, in surgery, the barbiturates find their greatest field of usefulness when employed in

conjunction with other anesthetics as "preanesthetic sedatives," or, in other words, as a background upon which to superimpose local, spinal or general anesthesia. The use of Sodium Amytal in this manner is already the subject of a rather extensive literature, which is admirably summarized in a group of articles appearing in the July, 1930, issue of the *American Journal of Surgery*. In the same issue, Fitch, Waters and Tatum[3] present a preliminary report covering an accurate laboratory and clinical comparison of Pernocton, Amytal and the newer development, Nembutal. They found that, to produce sleep in a previously morphinized individual, 0.6 to 1.4 Gm. of Amytal, 0.4 to 0.8 Gm. of Pernocton, and 0.2 to 0.5 Gm. of Nembutal were required. Obviously, the last-named is effective in much smaller doses and this, in turn, seems to facilitate rapid detoxification and rapid recovery. They find that both the period of postoperative sleep and the postoperative excitation are distinctly less with Nembutal and Pernocton than with Amytal—valuable factors in their favor.

Still more recently, Lundy,[4] of the Mayo Clinic, who was the first to employ Nembutal clinically, has reported upon its use in 403 cases treated between March 4 and June 18, 1930. He considers that, in distinction from Amytal, it is essentially an antispasmodic and sedative, and hence there is less delirium incident to its use. Small doses of morphine during the period of awakening easily control the symptoms encountered. He clinically confirms the pharmacologic observations of Fitch, Waters and Tatum, that it is twice as effective as Amytal and that the period of recovery is but half as long. Being so potent, dilute solutions may be employed, minimizing damage if any is inadvertently injected outside the vein. Since reporting these cases, Dr. Lundy has employed Nembutal in an additional 800 cases, with equal satisfaction.

While in the past it has been customary to administer the barbiturates intravenously, Lundy finds that Nembutal is essentially as effective when administered orally or rectally, the only difference being that the onset of the effects is slower. It is his custom to give 1½ to 3 grains (0.1 to 0.2 Gram) by mouth on the evening preceding the operation, to insure restful sleep; and from 45 minutes to one hour before the operation, a further 3 grains is given, by mouth, to the patient, who is still in his room. It is also desirable to administer ¼ to 1/6 grain (8 to 10 mgm.) of morphine and 1/300 grain (0.3 mgm.) of atropine (or 1 H. M. C. tablet No. 1) hypodermically at this time. The patient reaches the operating table essentially asleep. Normally, there is no memory of the preparatory events nor of the induction of the anesthesia.

With such general anesthetics as ether, nitrous oxide and ethylene, it is important to note that the amount required is markedly decreased, often to 1/3 of the normal. If oxygen is employed along with these anesthetics, its concentration may be greatly increased (up to as much as 50 percent, with nitrous oxide), with a resultant marked increase in safety. In many instances the inhalation anesthetic need be applied only during the more painful portions of the operation. These observations are in accord with the interesting pharmacologic findings recently reported by Stormont, Lampe and Barlow.[5] Relaxation, particularly of the abdominal muscles, is excellent.

Spinal and Local Anesthesia

The patient's dread of spinal anesthesia, with resultant shock, is frequently a definite drawback to this technic. Even many of those who do not fear it prefer to be oblivious to the events of the operation. The same may be said of nerve blocks and local anesthesia. With a suitable dose of Nembutal, the patient may be aroused sufficiently for cooperation, but normally remembers nothing of the operation. This amnesia is characteristic of these compounds.

It has been definitely established that barbiturates detoxify local anesthetics. Tatum and his associates have found that the ordinarily fatal dose of cocaine may be given to dogs previously treated with Neonal without producing death, and even with twice the toxic dose, 50 percent of the animals survive. In other words, not only does the Nembutal contribute to the mental welfare of the patient, but it is also of value as a prophylactic against reactions.

While oral administration normally serves, simply and satisfactorily, there does seem to be a definite field for intravenous administration. Where immediate action is desirable or where doses of over 4 grains (0.25 Gm.) are employed, it is essential.

Where it is desired to control the extent of sedation or anesthesia accurately, the intravenous route is again preferable, a 5-percent solution of Nembutal, prepared by adding 10 cc. of distilled water to 0.5 Gram of the sodium salt, as supplied in a special, wide-mouth, 20-cc. ampule, being given at the rate of 1 cc. per minute. By carefully observing the response of the patient, the point is noted where he does not respond to mild stimuli. A further 1 cc. will usually give the most satisfactory degree of anesthesia. *Under no condition* ***should more than 0.5 Gm. (7½ grains)*** *be given at one time.*

The intravenous administration of Nembutal usually causes a small and temporary drop in blood pressure and a slight decrease in rate of respiration. In doses of 0.2 to 0.4 Gm., these changes are inconsequential and simulate those encountered in normal sleep.

With a dose of from 0.2 to 0.4 Gm. the patient will sleep quietly for a period of from four to six hours. This is in distinct contrast to the prolonged period of hypnosis characteristic of Amytal, Neonal and other longer-acting barbiturates. During awakening there may be a period of muscular incoordination which, as stated previously, should be controlled by a little morphine. Postoperative nausea and vomiting do not occur.

If for any reason an overdose has been administered, the injection of caffein-sodium benzoate has been found fairly satisfactory.

The amnesia and sedation characteristic of the action of Nembutal are obviously of distinct value in obstetrics. When employed in addition to small doses of morphine and scopolamine, the patient rests between pains, but does not sleep; after delivery she sleeps quietly for several hours and, on awakening, normally remembers nothing that has transpired. In this field, oral and intramuscular injections seem to have been most frequently employed.

In summary, we may say, with Lundy, that Nembutal is most advantageous when it is desirable not to have a prolonged effect, as in surgical cases. When sedation is an important factor, as in preparing thyroid patients for operation, Nembutal seems to have an advantage over Amytal. "In connection with local anesthesia, it is definitely advantageous to avoid delirium, and here again the sedative properties of Nembutal make it particularly desirable."[4]

The use of a barbiturate such as Nembutal is advantageous from the standpoint of the surgeon, in that it prevents mental shock, gives him better relaxation and a wider margin of safety; from that of the anesthetist, in allowing the use of minimal amounts of the volatile or local anesthetics; and particularly from that of the patient, who appreciates being spared the fear and the memory of the preparatory measures, of the operation and of postoperative pain.

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The Art of Prescribing

The art of prescribing is declining, due probably to more attention being given to research problems than to practical materia medica instruction in teaching institutions. Other causes are increased reliance by practitioners on stock formulary prescriptions and propietary remedies.

Drugs are of no use to the man who does not know their use.

A short course in practical pharmacy to medical students would be desirable, even at the expense of some of the more highly specialized subjects.—Symposium, in Internat. Med. Digest, *March*, 1930.

Technic of Intravenous Therapy*

By Edmund D. Levisohn, M.D., *Chicago, Ill.*

THE history of intravenous medication dates back many years, and the drugs and preparations in use are legion. No one thinks of giving arsphenamine and neo-arsphenamine otherwise than intravenously when certainty of dosage is important, and the patient one in whom this method is applicable.

Although "the proper method of giving an intravenous injection" has been described in the literature over and over again, I continually see operators who lack what I term "needle sense." By that I mean that their fingers are unable instinctively to know where the point of the needle is.

The following items should be taken into consideration in the technic of intravenous injections:

1.—The patient and posture.
2.—The site of the injection.
3.—Preparation of the site of injection.
4.—The kind of syringe and needle, and their preparation.
5.—Preparation of material to be injected.
6.—The injection.
7.—Removal of needle.
8.—Post injection treatment.
9.—Common complications and their treatment.
10.—Post-injection psychology.

1.—A thorough physical examination of the patient, especially as to heart, lungs and kidneys, is essential, and a complete knowledge of the contraindications arising from diseases of these organs is material. Thus, patients with heart disease, tuberculosis or nephritis are usually poor risks for intravenous therapy, unless one is thoroughly familiar with what one expects in the way of results from this form of treatment.

Accessibility of veins should next be determined. Patients who have no visible median basilic or cephalic veins had better be given some other form of treatment. Veins above and below the flexure of the elbows and in the legs, while of use where a single injection is to be given, do not adapt themselves well for a series of injections.

It is also important to inquire if the patient has previously had any intravenous injections, as will be shown later. In highly nervous individuals, in children and in those whose median basilic and cephalic veins are not sufficiently large and superficial, a reclining position is best, with the arm or other part of the body exposed and easily accessible to the operator in the direction of the flow of blood. However, to the patient, this posture might make the injection seem a more serious operation than it really is. A comfortable chair, with the arm resting on a solid-footed table at the patient's side, seems less formidable to him, and is more convenient for the operator.

2.—**The site of preference, as stated, is** at the flexor surface of the elbow. The arm and forearm should be fully extended upon the table. There must be no bend in the elbow. A tourniquet, applied just tightly enough to constrict the venous circulation and distend the vein, is placed four or five inches above the site of injection. Having the tourniquet too tight or kept too long in place, might cause the deep veins to take on the work of the superficial veins and allow the latter to collapse.

3.—Sponging the area with a 70-percent solution of alcohol is sufficient sterilization. The application of tincture of iodine, Mercurochrome, etc. tends to obliterate the bluish tint of the vein.

4.—A glass syringe of suitable size to hold the amount of solution to be injected, previously sterilized by boiling and still hot, with a small-gauge, sharp, short-beveled needle attached, is preferable.

Years of experience have convinced me that "the best is none too good," when using solutions for intravenous therapy. **If I had a thousand injections of neoarsphenamine to give in a day, I should still** insist on using water that has been sterilized, filtered and sealed in ampoules, by some one thoroughly familiar with the process. The practice in some hospitals and clinics, of employing distilled water that is put in flasks, a portion of the water used, and the container corked up again, cannot be condemned too much, for once such a container is opened, it is no longer sterile. Sterilized, distilled water is too

*This article is entered in the prize competition on Parenteral Medication. See the voting coupon on adv. p. 44.

inexpensive to justify such a practice. The same can be said of drugs used for intravenous therapy. The arsenic preparations, especially, should be secured from reliable sources and be fresh stock.

Powdered drugs are best dissolved in a sterile medicine glass, by lightly spreading the powder over the distilled water. This method obviates the necessity for too much agitation, to get the powder into the solution. *The less a solution is handled before injection, the safer it is to use.*

Next, draw the solution into the hot syringe, through the needle. This avoids, to a great extent, the possibility of getting small foreign objects into the syringe. The hot syringe warms the solution. Now hold the syringe vertically, with the needle pointing up, and express the air.

Draw the tourniquet taut and wait a half-minute for the vein to fill. Having the patient clench his fist helps materially to distend the vein.

Hold the syringe betwen the thumb and index finger, place the point of the needle about a quarter of an inch below the site at which you wish to enter the vein and, with steady pressure, puncture the skin. Then slowly press the needle down on the vein so that it pierces the wall. Fingers with "needle sense" quickly feel the release of tension as the point of the needle enters the vein, and the blood promptly flows into the syringe. If one desires to assure oneself that the needle is really in the vein, one need only draw back a little on the plunger and blood will enter the syringe freely. The needle should be gently guided from one-quarter to one-half inch along the course of the vein. Now, with the thumb and index finger of the opposite hand, steady the syringe against the skin. This will prevent the needle from slipping out before you are ready.

Before starting to press the plunger, again withdraw a little blood, to be sure that the needle has not accidentally passed completely through the vein. Release the tourniquet, direct the patient to unclench his fist slowly and proceed with the injection. It is inadvisable to inject more than five cubic centimeters of fluid per minute. The larger the quantity to be injected, the slower it must be given. Thus, a very large amount of solution should not be given at a greater speed than 3 cc. per minute.

7.—When the injection is complete, hold a piece of gauze or cotton, saturated with alcohol, over the point where the needle entered the skin, withdraw the needle slowly and continue the pressure over the insertion point for two or three minutes. I usually have the patient do this last. I have never found it necessary to seal the puncture wound with collodion or adhesive, as advocated by some.

8.—It is well to have the patient rest for from five to ten minutes, following the injection, before leaving the office. Have him lie down if any unpleasant symptoms should arise.

9.—Complications of intravenous injections are varied. Air emboli and hemorrhage around the veins are due to errors of technic. Nausea, dizziness and faintness are easily overcome by having the patient sit on a chair or stool, with the body bent forward as much as possible and the head between the knees. The nitritoid reaction, which sometimes follows the administration of arsphenamines, can be controlled by the subcutaneous administration of one or two cubic centimeters of epinephrin (1:1000 solution).

10.—Every patient is told, immediately after the first injection, that chills, nausea, vomiting, fever and a feeling of weakness may follow, though they are not usual; but, if they should occur, to lie down, cover warmly and apply hot-water bottles to the body. The symptoms will disappear in from one to twelve hours.

Patients should also be warned in regard to other effects the solution injected may produce. Thus, in the case of iron cacodylate and arsenic preparations, an odor of garlic on the breath is not uncommon; in the case of metallic preparations, diarrhea or a metallic taste in the mouth should be reported by the patient on the next visit; in typhoid or malarial injections, the expectation of producing the reaction of chills and fever should be mentioned to the patient; the urticarial reactions sometimes following serum injections must not be overlooked. These suggestions have a good psychologic effect upon the patient, and make him feel that you thoroughly understand the treatment you are giving him; and if any unexpected reaction develops, the patient's confidence in you will not be shaken.

Intravenous introduction of drugs places them, unaltered, in the blood stream, where you expect them to do their work. Many efficient remedies lose their potency when

administered by mouth, their efficiency being often altered by the chemical reaction of digestive juices to such an extent that they become inert. Furthermore, there are many drugs that would be injurious, locally, to the digestive tract mucosa, which can, with entire safety and with good results, be given intravenously, directly into the blood stream.

Incidentally, there is a practical side to intravenous therapy. The patient sees you doing something for him, and is thereby better satisfied and controlled.

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Oxygen Parenterally*

By F. LeBlanc, M.D., *Elgin, Ill.*

OF LATE years one occasionally reads of oxygen being administered by several routes other than by inhalation.

My attention was first drawn to its subcutaneous administration through the work of J. E. R. McDonagh, of London, who gives the indications for such administration in his book, "The Nature of Disease," Volume II. I later found that Alexandresco-Dersca and Valter, of France, injected it intravenously, with impunity. They used the apparatus of Bayeux, made by Richard, of Paris. This instrument is so constructed that accurate dosage may be measured and administered at a definite number of cubic centimeters per minute.

Although warned, by K. R. Werndorff, that the injection of oxygen into any tissue or into any cavity is accompanied by the possibility of entering a bloodvessel, or that the injection of oxygen under pressure directly into the blood stream might cause instantaneous standstill of the heart, in diastole, and immediate death because of the accumulation of oxygen in the right ventricle, I, as well as several of my colleagues, have followed Alexandresco-Dresca's method and have injected oxygen under pressure subcutaneously, intravenously and even into the heart, without causing alarming symptoms.

We have seen striking results in pneumonia and certain heart failures, refractory to the inhalation method, respond immediately to the subcutaneous or intravenous introduction of oxygen, tending to show that, in many cases, the changes in the lungs prevent full utilization of the gas.

I have found that cases responding best to the parenteral action of oxygen are those whose blood-chemistry reveals secondary hydration; i. e., where the refractometric index of the serum is above 1.3,500; the viscosity above 1.8/1 (Hess viscosimeter); the blood-sugar is low; and the ultra-microscopic picture reveals a paucity of moving particles, with the presence of large, giant and ringed particles and, perhaps, much precipitation of many of these. Such a blood picture I have described in previous articles as a state of hydration, following McDonagh's nomenclature.

I have used the intra-cardiac method three times, in moribund cases, and, although having no hopes of saving such patients, I have noticed a decided stimulation and improved cardiac rhythm for the next hour following the administration of 250 cc. of oxygen, given at the rate of 8 cc. per minute, into the heart itself.

McDonagh recommends oxygen, given subcutaneously in doses of 1,000 cc., following the administration of 1,000 cc. of 10-percent dextrose solution intravenously, and claims that oxygen, thus given, will prevent many of the particles from being unduly dispersed and thrown into solution, as evidenced, through the ultra-microscope, by the amicronism and paucity of such particles in the serum.

As a parting word I would advise that much of our parenteral medication is followed by success, failure or even shock, according to whether the blood serum of the patient reveals one or the other of two diametrically opposed states of the blood-

*This article is entered in the prize competition on Parenteral Medication. See the voting coupon on adv. p. 44.

chemistry; viz., hydration or dehydration, with their very characteristic findings.

We must realize, more and more, that drugs have very definite actions and that the size of the dose and the nature of the drug, as well as the intervals at which it is administered, may spell success or failure, whether it be administered by mouth, subcutaneously or intravenously.

Courier-News Bldg.

Fundamentals of Medical Economics*

(A Message to the Young Physician)

By Edward H. Ochsner, B.S., M.D., F.A.C.S., *Chicago*

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THE other evening, in rereading the "Kasidah," I came across a paragraph which seemed particularly apropos to the subject I wish to discuss.

Sir Richard Burton, in his notes makes the following observation about the author: "Hadji Abdu has been known to me for more years than I care to record. He had traveled far and wide, with his eyes open. To a natural facility—a knack of language learning—he added a store of desultory and various reading; scraps of Chinese, and old Egyptian; of Hebrew and Syriac; of Latin and Greek; besides Persian, his mother-tongue, and Arabic, the classic of the Schools. Nor was he ignorant of the "-ologies" and the triumphs of modern scientific discovery. Briefly, his memory was well-stored; and he had every talent save that of using his talents."

If I were a clergyman I would use for my text: "*He had every talent save that of using his talents.*"

Medicine is naturally divided into three parts: Science, art and economics. The science can be compared to the foundation of an architectural structure, the art to the building, and the economics to the roof. What would we think of an architect or a builder who built a very sound foundation, a beautiful structure and then refused to put on a roof? That is very largely what the medical schools of this country have been doing for a good many years. They have been building the foundation better and better and the structure better and better and neglecting the roof.

Thirty-five years ago the Homeopaths were very strong in Chicago. There were 1,000 students in the four Homeopathic colleges. Not only the "*pratique d'or*" but the "*pratique d'argent*" was very largely in the hands of the Homeopathic physicians of the city. The reason for it was that the Homeopaths, in their schools, taught the medical students something about the problem of medical economics, how to deal with patients and the ethics and the manners of the sick room.

The regular physicians of those days were "above" those things. Most of them gave horse medicine in horse doses, to their patients, and only too often prided themselves on their gruffness. The Homeopaths, instead, gave their patients sugar pills and treated them as ladies and gentlemen. But they could not maintain themselves for, while they had some art and much economics, simon-pure Homeopathy had no scientific foundation. "Allopathy" has maintained itself because, even in those days, it had quite a foundation in science, particularly in anatomy, gross pathology, chemistry and physiology, and it had more facility in the art, and those are the reasons why regular Medicine has been able to survive, while Homeopathy has gone to the wall. The osteopaths and the chiropractors have neither science nor art. Their whole scheme is a scheme of salesmanship and it cannot survive. It is already almost extinct.

It behooves the medical profession to build a good roof on the top of its buildings. When you see men and women spending twenty years in learning their profession,

*Address delivered to senior students of the University of Illinois College of Medicine, April 16, 1930.

and then going out of medical schools and utterly failing in making a decent living for themselves and for those dependent on them and in rendering service to society, because of lack of patients, it is a human tragedy. When you see that kind of thing happen hundreds of times each year it is, not only a multiplication of human tragedy, but also a great economic loss to the country.

For twenty years, in season and out of season, I have been preaching and writing, urging the medical schools of this country to make at least an effort to teach their seniors something of the problem of medical economics. I am happy to see a few schools waking up and beginning to do what they should have done thirty, forty—yes, fifty years ago. Medicine, today, would be in a far better position than it is, if the leaders of our profession had seen the necessity of a dozen or even a half dozen lectures to senior students, by men who have gone through the mill, and much of this human waste and human tragedy could have been avoided, I am sure.

Success in Practice

What do we mean by success in the practice of medicine? I believe that it means two things: First, to make a decent living for yourself and those dependent upon you and to acquire a competence by the time you must retire because of sickness or old age; second, to render efficient service to the community which you serve. I think those two points are equally important.

A certain degree of economic reward is necessary for the individual physician, in order that he may be able to render his greatest service to society. Not much luxury, for too much luxury is very apt to clutter up one's life, but ordinary animal comforts, such as a comfortable home, good wholesome food, well-tailored clothes, so that he can meet all men on an equal footing, insofar as outward appearances are concerned, and sufficient money for travel, both for recreation and study.

American Medicine has risen to its present heights, partly because many of the men in the profession have had enough money to do the very things they needed to do in order that they might continue to grow. The idea of service to the community by the profession being solely dependent upon the scientific knowledge which they acquired in school, is fundamentally wrong. Only under conditions of reasonable economic independence can a medical man do his best and render the greatest service to his fellow men. If I read history correctly, only once in the recorded history of the world has a slave risen above the level of mediocrity, and that was in the realm of the spirit and not in concrete accomplishment. Economic slavery is almost as great a blight on character, on self-respect and self-assurance, as chattel slavery.

The potential professional man has five important decisions to reach: The first is, what profession shall he enter? The second, what institution of learning shall he attend? The third, whom shall he choose as his helpmate? The fourth, where shall he locate? And the fifth, to what particular line shall he concentrate his efforts.

If you are not suited for the medical profession by temperament, you are just "out of luck," and the sooner you find out that you have gotten into the wrong profession and the quicker you get out of it, the better off you will be and the better off the community will be.

Internship

There is one problem in your future education that you still have a choice in, and that is the sort of hospital in which you will serve your internship. If I were a young man again, I would do exactly what I did thirty-five years ago—I would burn the midnight oil and get into the largest and best hospital available.

If you cannot get into the most satisfactory hospital, there are many other good hospitals that need interns, where you can probably get just as good training, except that you may not see so great a variety of cases.

The large charity hospital, however, has some very serious disadvantages, but you can overcome them if you recognize them at the start. I made two rules when I entered the Cook County Hospital. The first was that I would treat my patients in the County Hospital just as I would treat patients in private practice. I have seen more than one man go out of the hospital and spend five years in unlearning the bad habits that he acquired there. The other rule I made was that I would never be a party to any form of graft and that I would never accept a tip from anybody. To accept tips is bad for your self-respect.

Do not serve in any hospital where you are compelled to stay on one service for

one year or more. You are still in the plastic stage and you are very apt to get an exaggerated idea of the importance of the one specialty you serve in. Get the best course you can under men of ability and integrity.

Choosing a Mate

"Doc" Adams says: "Evolution made men out of monkeys. Matrimony reverses the process." The first half of this statement is not under discussion. In place of the second half I would say, matrimony makes monkeys out of some men and out of some women.

Your success in the practice of medicine will depend almost as much upon whom you marry as it does upon your own personality and upon your education. I have seen more than one young man's life blighted and his professional career ruined by the woman he married. I have seen more than one medical man achieve great success, in the best sense of the word, partly at least because he was wise in picking out the right helpmate.

Location

Unless you have an opportunity to go in with some older man who has an established practice, your chances of success in the practice of medicine in a large city, going in on your own hook, are almost nothing. You can not expect to gain a practice by simply hanging out a shingle when there are two or three thousand men, your competitors, who already have an established reputation. The tragedy of recent graduates locating in large cities and using up whatever little savings or inheritance they may have, and then having to move after five or ten years, is simply pathetic.

The recent graduate who chooses to locate in a large city on his own hook is courting failure. On the other hand, the smaller towns in the country need you. One of the ingredients of success is service. If you do not get a chance to serve people your life is a failure.

Five years ago I tried for a while to get a young man to go into a town of 500 inhabitants, where the doctor who had recently died had had a bank deposit of an average of $1,000 a month. The people in the community were so anxious to have a doctor that they bought the doctor's house. They wrote to me imploring me to send them a doctor who would take the place and they were willing to rent him the old doctor's house for $25.00 a month. I communicated with various graduates and with interns in several hospitals. I was assured that a capable young man could easily lay aside $500.00 a month. *I could not get any one to locate there.* Some of them who refused are still near starving in Chicago.

The degree of success one attains in life depends in great measure upon how completely one succeeds in blending egotism and altruism. I am using the term success here in its finest, broadest sense. If you go too far with either, you get into trouble.

Ten years ago I was invited to deliver an address in a downstate town. I arrived several hours before the time of the meeting and the president of the County Society spent the interval by showing me the town. On our way we met an old physician and my host said to him, "Come to the meeting this evening. Dr. Ochsner is going to read a paper." He said he did not think he could come. We started to walk away and he called my companion back. He said, "Doctor, I would like to come to the meeting, but I have not the dollar and a half for the dinner." When the doctor joined me he said, "There is one of the most kind hearted and efficient doctors that this community has ever had, but he was not a money maker and today he is living with a granddaughter, just by sufferance. He has not the money to come to the dinner, but he is going to be at the dinner just the same, because I am going to pay for his dinner myself." He was too altruistic for his own good.

Do not go to the other extreme, however. To be too keen for money is even worse. You can never expect to accumulate millions in the practice of medicine. If you did it would not be good for you. While poverty is a misfortune, great wealth is usually a curse, if not for the generation that accumulates it, at least for the second and third generations.

Today's medical graduates are well grounded in the science of medicine and, if they make good use of their internships, they are fairly well prepared in the art, but they are not even in the kindergarten class when it comes to the economics of medicine—the business side of medicine. They are in much the same position as Hadji Abdu. They have every talent save that of using their talents.

Little Things

Learn to do little things well. No man ever learned to do big things well who had not first learned to do the little things well. Do not get excited because somebody is going to take out a pituitary gland the next morning. The chance of your ever taking out a pituitary gland is one in a hundred million, and even if you had the chance it would probably be a bad thing to attempt it.

Learn how to strap and aspirate a chest for pleurisy. Learn how to treat a scalp wound, a septic infection of the extremities, an ankle sprain, how to wash out a stomach, how to catheterize a male bladder for six months, three times a day, without infecting it. Learn how to put on a plaster cast properly. My experience with most interns is that when they begin to do those little things they are wool gathering, they are looking out of the window or thinking about their best girls. When there is a gall-bladder operation or a stomach resection or a thyroidectomy their eyes bulge out.

There is only one chance in a hundred that you will do any one of these big things during the first five years after you get into private practice. Your first case is not going to be a resection of the stomach. Your first case will probably be a boy who has fallen down and has a little gash over his forehead. The old doctor cannot be gotten right away. In her excitement his mother calls you; that is the only reason why she ever called any young doctor in the neighborhood. Why should she call on a young man? It is not reasonable to expect it.

Size up the psychology of people. If you go into that house and go at it in a business-like manner; if you know how to handle that five-year-old, spoiled boy; if you secure healing without a scar, that mother will tell everyone for ten blocks around, "That new doctor is a real fellow; when you can not get old Dr. Jones get him." If you know all about gall-bladders and resections of the stomach and do not know how to do those little things you will never get anywhere, because those are the things you are going to have to do during the first five years.

Specializing

Do not specialize too early, but learn, while you are in the hospital, what you are particularly fitted for. Do not ask yourself merely what you would like to do, for most young doctors would like to be great surgeons. Ask yourself, instead, where and how and in what particular line you can render the greatest service to your fellowmen.

I knew a young physician, some years ago, who told one of my friends, "I am not going to be a general practitioner; I am going to be a surgeon. The idea of making night calls does not appeal to me. I am going to do four laparotomies a week and charge $200.00 apiece." Can you believe that any man of twenty-six years could be so dumb? And yet, he was a product of one of our Class A schools. That chap has been out in private practice for about seven years and he is delighted when he has a night call.

Find out what you are best fitted for; find out what the public needs; put those two together, and your chances of success will be very much greater than if you prepare yourself to pick flowers from the century plant and, furthermore, you will be more satisfied with your life when its evening comes.

2155 Cleveland Avenue

Clinical Intuition

The unexplained and untransmissable "feelings" about patients and their diseases, which the older clinicians amazingly possessed, have commanded a diminishing respect during an epoch in which the exact technical procedures of chemistry, bacteriology, serology and physics have brought so much light to the bedside. Yet those ancient clinical intuitions are still as valuable as they ever were. But now, owing to new methods of analysis, we are in a position to examine their nature and their source, namely the total personality of the patient himself.—George Draper, M.D., *in "Disease and the Man."*

General Treatment of Pulmonary Tuberculosis*

By F. L. Jennings, M.D., *Oak Terrace, Minnesota*

Associate Medical Director, Glen Lake Sanatorium.

IN treating disease, whatever the etiology may be, one has to accept a certain percentage of bad results. In years gone by, the percentage has been very high in the treatment of tuberculosis; in fact, bad results seemed to be inevitable and recovery was quite an astounding thing.

Today, favorable results in the treatment of tuberculosis are still not one hundred percent; nevertheless, they are much better than they were. This change for the better has, I believe, been brought about by a better appreciation of the principles involved in treatment and a better application of these principles.

A few physicians can avail themselves of the privilege of sending their patients to a sanatorium for the treatment of tuberculosis—to a private sanatorium or county sanatorium—but a large percentage of the physicians still find themselves faced with the problem of treating tuberculosis in the patient's home, and it is to these physicians that I particularly wish to address these remarks. They will find it necessary to treat, not only the minimal case of pulmonary tuberculosis, but also the far-advanced case.

For years, the teaching of the treatment of these various types of pulmonary tuberculosis has emphasized the importance of four cardinal things: Fresh air, good food, rest and exercise. Because fresh air and good food have been generally and generously emphasized, and because of their relative unimportance today, we can pass over them.

Rest

The important factor in the treatment of tuberculosis is the factor of *rest*. In fact, it can be said that it is *the* treatment—that it has been thoroughly tried and found effective. It is easy to understand the need of rest and what it implies; i.e., the avoidance of strain, by visualizing the microscopic tubercle with its various layers of cells. This forms a very delicate structure and has been likened in delicacy to the cobweb.

Considering this delicacy, then, it is necessary to impress upon the patient the need of rest, making him realize that something more is needed than for him to simply stop work and spend his time sitting about in the park.

After thoroughly impressing the patient with the need of rest and making him realize that, the more intensive his rest during the early part of the treatment, the quicker will be his recovery and return to work, he should be given typewritten instructions as to just how each hour of the twenty-four should be spent.

In making up a schedule, the doctor must remember that the patient's outlook and knowledge of tuberculosis is much different from his own. He must, therefore, include in the daily schedule things which are quite commonplace to him and things which mean so much to the patient if they are properly carried out. The time of day when the physician wishes to have the pulse and temperature taken must be indicated; also the time of day he expects his patient to have the various meals. It should be clear that the patient is to remain in bed and not get up for *anything* during the initial part of his treatment—not even to go to the bathroom.

The schedule should include an hour's rest immediately after each meal, and after the noon meal that rest should extend over a period of two hours, during which time the patient should be encouraged to sleep. An hour or an hour and a half should be allowed each forenoon for the patient to read and write letters, as he lies quietly in bed. Allow an hour in the forenoon and another in the afternoon for listening to the radio. Have him relax for an hour immediately before the noon meal. Specify just when he is to have visitors and how long each visitor may stay. Plot out the entire day for him, so that he may know what to

* Presented at the Short Course for Physicians, at Glen Lake Sanatorium, Oak Terrace, Minnesota, November 15th, 1929.

do and so that the doctor may know what he is doing.

In the case of hemorrhage or increase of fever or pulse rate, the need of greater conservation of energy is indicated. This may be brought about by having the patient fed, by having him read to and having his writing done for him.

All patients with clinical tuberculosis should be put to bed for the beginning of their treatment, whether they be in the minimal or incipient stage or in the more advanced stages. The length of time these people should be kept in bed will, of course, depend on the progress they make, and it stands to reason that a minimal case will not need to be kept in bed so long as the advanced cases; but one must not allow one's patients to get out of bed too soon.

Each case will have to be considered individually from a therapeutic standpoint, but there are two rules which can be applied to all patients: (1) If patient has had signs of toxemia, as manifested, particularly, by fever or tachycardia, he should be kept in bed, *after the symptoms become normal*, for a period corresponding to that during which they were present; (2) keep the patient in bed as long as there are signs of improvement, as noted by symptoms, physical signs and particularly x-rays.

Gradual Return to Normal Living

After a patient has stopped showing improvement and his condition has been stationary for a period of two or three months, he may be allowed to sit up in bed for short intervals each day. The length of the intervals may be increased from time to time. Later, he may be allowed to sit in a chair and still later be allowed, providing, of course, there have been no symptoms to contraindicate, to go to the bathroom once daily (the bathroom to be on the same floor). A week or two later, the patient may be allowed another bathroom privilege. In this manner, privileges may be increased until he goes to the bathroom as often as necessary. Care must be taken not to advance the patient too rapidly, as it has been shown that fibrosis takes place much faster, if a proper amount of rest is taken, than if the patient is allowed to subject himself to strain.

Should the patient show signs of an increase of his disease, either by an increase of his symptoms or an increase of the x-ray lesion, his privileges should be decreased, or possibly they should be taken away entirely, and rest in bed resumed. Should his x-ray pictures show evidence of a decrease in size of lesion, his privileges ought not to be increased for at least two months, as it is felt that a retrogressive lesion is more apt to become activated than a stationary lesion. If, however, his condition has remained stationary thus far, then the privilege of eating one meal in the dining room may be allowed and the number of meals increased in the slow manner that bathroom privileges were allowed.

When a patient has reached this period in his progress, he has been free from signs of toxemia for a long period and he finds it difficult to adhere to the slow exercise regime necessary for the completion of his socalled "cure." *The physician should realize this and prepare for it before the time comes.*

After his patient has been going to the dining room to all meals for about two weeks he may be allowed to take a short walk of a half-hour daily, if his lesion was only of a minimal nature; but if his lesion was of a more extensive nature, then a fifteen minute walk will be all that should be allowed. *Once in two weeks is often enough to increase a patient's exercise.* The exercise of the patient with the early lesion should be increased proportionally faster than the one with the more extensive lesion and these increases should continue until the patient has four hours of exercise daily. At this stage, he may be allowed to return to his work for a half-day, providing, of course, his work is not of too strenuous a nature. Whether the patient be walking or working for four hours, the remainder of the day should be spent resting, and gradually the resting period be transferred into working until the patient has again taken on a full day's working capacity.

If only patients and doctors could be impressed with the necessity of following pulmonary tuberculosis for the time necessary for the complete arrest of the disease, there would be fewer relapses.

A regime, such as outlined, is applicable for all cases of pulmonary tuberculosis—for the large group who are not suited for surgical intervention, and also for those who do have operative aid.

Polyneuritis and Arthritis

By Albert Knapp, M.D., Chicago

Formerly Professor for Neurology and Psychiatry at the Universities of Halle and Goettingen

AMONG the different groups of arthritis (traumatic, infectious, syphilitic, gouty, caused by serum injections, connected with hemophilia, purpura etc., and the large manifold group of endless variety, with a tendency toward permanent changes, without definite etiologic explanation, as arthritis deformans and most of the cases of chronic arthritis), one group is extremely interesting to the neurologist, but very important for the general practitioner also—the arthritis connected with and secondary to nervous diseases. I do not wish to refer to the joint changes in tabes, because there is no real arthritis, no common inflammatory process, but a socalled arthropathy, with effusions into the joints and deforming atrophic or hyperplastic changes of the joints. The same is found in most of the cases of syringomyelia.

Among the latter conditions there are a few cases in which the trophic changes, and especially the effusions, are followed by a real arthritis. This is not very widely known. One cannot even find those cases in the most famous and carefully written textbooks of pathology. I saw some of them as pathologist at the University of Tübingen, in the neighborhood of which one of the centres for syringomyelia happened to be.

Much more important, equally unknown and, until now, not yet mentioned in any textbook or magazine, are the arthritis cases connected with polyneuritis and caused by the same virus. I never saw such cases before the War, but I met with them very frequently during and after the War. On account of the starvation of the German population during the War, the nervous system of the present and future generations degenerated. It is absolutely necessary for the general practitioner to know that polyarthritis and polyneuritis are now associated more frequently.

As consulting neurologist, first of one of the German armies and later of the remnants of the whole German army, I saw a great many of those cases; but I do not wish to demonstrate them, because one might object that they were existing only under abnormal conditions. I should rather like to mention some experiences I had in my private practice and during my activity as chief expert for the government.

Case Reports

In one family a girl started with dry pleurisy and, a few days later, developed multiple neuritis. Her brother had sciatica, with a high temperature, and the mother was afflicted with polyarthritis. In some of my cases, polyneuritis was followed by polyarthritis and even endocarditis. In one I found, first, a polyarthritis and later a polyneuritis.

In other cases I watched some of the well known equivalents of polyarthritis, in connection with undoubted polyneuritis. A twenty-year-old girl consulted me on account of rheumatic purpura and developed, two weeks later, symptoms of neuritis in both brachial plexuses and in several intercostal nerves. After having improved, she had an attack of polyarthritis in both knee and elbow-joints, with a murmur at the mitral valve, which disappeared after three weeks.

A lady, fifty-four years of age, who had suffered from polyarthritis seven years ago, showed an erythema nodosum, with frequent relapses, and acquired a multiple neuritis ten days after the last attack.

A woman of forty years was suffering from a tuberculous affection of the apex of one lung and from a very obstinate intercostal neuritis; while her husband had polyarthritis and myocarditis; the only child, St. Vitus dance (chorea).

Another patient was afflicted with polyneuritis of the arm and legs, followed by atrophies and degenerative electric reaction on both hands; later he showed effusions in both sternoclavicular and in the right elbow joints, with mitral insufficiency.

I am suffering, myself, from frequent attacks of multiple neuritis, after carbon monoxide gas poisoning. After a severe attack.

limited to the right arm, paralyzing the shoulder and arm muscles for more than half a year and causing very conspicuous atrophies, I observed an arthritis of the right wrist and of the left intermetacarpal joints. Some years later, in connection with an attack of neuritis in both peroneal nerves, with atrophies of the small toe muscles, I noticed an effusion in the left great-toe joint; and just now I am suffering from arthritis of the left knee, following a very painful attack of neuritis of the left foot, with trophic ulcers on the sole and below the great toe.

A street-car conductor was suffering, first, from polyarthritis of the right knee, hip, and foot joints, followed by an attack of neuritis in both crural nerves and in both *tibiales antici*.

One may object that all these cases of associated polyarthritis and polyneuritis have been observed in Germany and that the European constitution is entirely different from the American, on account of the possibility of taking life easier in this country, the greater wealth and the better food, the better climatic conditions and the diminished competition. I admit that, and I emphasize the influence of the climate on both polyarthritis and polyneuritis. I know there are few cases of polyarthritis in Egypt; none at all in Madagascar; not many more in Japan; and many of them in India. Chicago shows an abundance of cases of arthritis and of neuritis; but the latter are frequently not diagnosed.

Some weeks ago a lady was demonstrated before a medical society, with an utterly insufficient diagnosis. She was suffering from neuritis of the right brachial plexus, especially of the serratus, latissimus dorsi, both pectorales and one third of the deltoid; and there was arthritis of the shoulder joint, also.

Therefore, I have sufficient reason to believe that cases of arthritis, secondary to multiple neuritis, are not confined to Europe, but occur also in this country, and they deserve not only theoretic interest, but also the attention of the general practitioner.

31 North State Street

Toxic Goiter

By William Benham Snow, M.D., *New York City*

IT HAS been generally conceded, by both surgeons and internists, that operative procedures on the thyroid gland are not based upon premises directed towards the correction or recognition of the cause. The surgeons have established the practice of removing portions of the gland, in order to lessen the secretion of thyroxin, without reference to the cause. Sajous, who has been the leading authority in endocrinology, has said[1]:

"There have long been two main theories regarding exophthalmic goiter: First, that it is due to excessive thyroid activity; second, that it is a nervous disorder. Time has shown, however, that, as is often the case with strong and well sustained hypotheses, both were correct and more or less interwoven. Moreover, other ductless glands have been found to participate in the morbid process, the adrenals and thymus in particular.

We now know that various toxins originating from the intestines, pyogenic disorders of the tonsils, the nasal and faucial cavities, gastroptosis with prolonged retention of ingesta, and other causes may underlie the morbid process. Some overlook the toxemia. Others, though admitting it, fail to take into account the one factor which elucidates the whole morbid process; viz., that it is in defending the body against intoxication that the thyroid body becomes abnormally active."

Professor Solomon Solis Cohen[2] is quoted as follows:

"Graves' syndrome is one of a number of related syndromes shading into one another (like a spectrum, of which it may be considered the red, while Raynaud's syndrome is the violet), showing varying degrees of unbalance or incoordination (ataxia) in the vegetative (autonomic) nervous system and its endocrine appendages."

The effects on the sex organs, according to Bram[3], who quotes from others, are as follows:

1.—"Goitre, Nonsurgical Types and Treatment." Israel Bram. p. 99.

2.—"Goitre, Nonsurgical Types and Treatment." Israel Bram. p. 397.

3.—"Goitre, Nonsurgical Types and Treatment." Israel Bram. p. 58.

"That the thyroid gland and its secretion influence the growth and functions of the sexual organs, is thoroughly established. 'The connection between the thyroid and the sex organs is intimate' (A. Lane)[4]."

Havelock Ellis[5] asserts: "As, indeed, has been hinted by many others, the (thyroid) gland follows closely all the variations in a woman's organism, to so marked an extent that Menckel long ago remarked that the thyroid is a repetition of the uterus in the neck."

All these suggestions point to the fact that the thyroid gland is rather the victim than the cause of the derangements which follow in the trail of Graves' disease and that the cause is directed towards some process that has produced a disarrangement, in many cases, in other portions of the endocrine chain, by which an increased thyroid secretion is called forth.

In all cases the classical syndromes of the affection have their origin from some condition remote from the thyroid gland. For this reason the cause may be referred to various conditions, so well suggested by Dr. Sajous, which may have contributed to the increased function of the gland. It is, therefore, impossible to outline distinctive conditions that will be traceable, in all cases, to a definite source. It may be traced, however, to toxic sources or disturbed inflammatory conditions of some part of the chain, as of the sex organs, adrenals, pituitary or to disorders of the nervous system. Something has upset the equilibrium of the nervous system. Whatever the cause, the existing phenomena may be traced to either the parasympathetic or sympathetic nervous system.

These premises afford a definite hypothesis that the thyroid malady is not a disease of the thyroid gland, but that the thyroid gland is induced to hyperfunction on account of disordered conditions of the nervous system or departures from normal of other members of the endocrine chain.

It is, therefore, not expedient to attempt to restore normal functions attributable to overactivity of the thyroid gland by operative procedures. Sectioning off an indefinite portion of the gland, to regulate a possible outflow of thyroid secretion, cannot, by any reasonable hypothesis, be justified as a means of restoring the patient to normal, with the cause or causes still active. Neither can it be determined by the most skillful operator how much of the gland should be removed in order to obtain a normal output of thyroxin from the thyroid gland. It is, at best, a guess as to how much gland should be removed. The record of cases that come under observation, adequately show that, even with those having the largest experience, there can be no accuracy in limiting the output to a variable demand by the surgical method.

There are other dangers associated with this procedure; one in particular that, oftentimes, the parathyroids are enveloped in the thyroid gland and their removal will be followed by serious conditions of tetany, which afterwards can only be controlled, and then not satisfactorily, by the administration of parathyroid extract. Richter[6] acknowledges that, in fourteen percent of cases, the parathyroids are injured.

In a recent number of the *Journal of the American Medical Association,* Pemberton, of the Mayo Clinic states[7]:

"The cause of exophthalmic goiter is unknown. All evidence indicates that an intense stimulation of unknown source, operating, probably, through the sympathetic system or the blood and acting on the entire gland, drives it to the point of overproduction of an active agent. The only known anatomic change characteristic of the disease is found in the thyroid gland; that is, diffuse hypertrophy and hyperplasia."

From this point of view the surgeon justifies his procedure. Pemberton further states that the incidence or recurrence of hyperthyroidism is not large, implying that the guess may be pretty nearly accurate.

Judging from the observation of Pemberton, the operative procedure, in the hands of different surgeons, varies from the extreme program of removing very much of the gland and that others have attempted to remove the entire gland, with the purpose of producing hypo-thyroidism or myxedema. He further states that there may be an apparently sound basis for believing that, the more radical the resection of the gland, the greater the chance for permanence of cure.

Under what hypothesis the term cure is used here, is imaginary. If the guess may or must result in myxedema and the patient thereafter be a victim, depending on con-

4.—A. Lane, in abstract of discussion. *J.A.M.A.*, Aug. 31st, 1918.

5.—Havelock Ellis. "Man and Woman." 4th Edition, 1914.

6.—Thyroidectomy: Its Relation to the Cure of Thyrotoxicosis. H. M. Richter. *J.A.M.A.*, March 19th, 1927, vol. 88, page 888.

7.—Recurring Exophthalmic Goiter: Its Relation to the Amount of Tissue Preserved in Operation on the Thyroid Gland. John deJ. Pemberton. *J.A.M.A.* May 10th, 1930, vol. 94, No. 19, page 1483.

stant use of prepared thyroid extract, it can in no sense be a cure. The word cure is not adapted to any operative procedure whatever, particularly one that leaves the patient suffering from thyroid dysfunction. Experiments are performed by the various operators, and men of little or no experience assume to perform an operation which, from every point of view, is unjustifiable, when these cases can be corrected by other means.

Bram's method of providing the patient with quiet environment, diet and attention to toxic sources of trouble offers a far more rational system than does surgery. There are other methods which are directed to the correction of derangements in metabolism by treatment directed to the removal of all sources of focal infection and correction of pelvic troubles that impair the normal functions of the organism. These offer a rational basis for the actual cure of hyperthyroidism. The time must come when more expedient methods than those now pursued by the surgeons will be given merited attention.

It is the lack of information, on the part of the misguided laymen, that causes them to subject themselves to promised cures of this distressing condition. There are cases too far depleted to be submitted to operation. These extreme cases yield safely to rational treatment of metabolism, by measures directed to the removal of discoverable causes which account for the condition. Few, indeed, are the cases that cannot, under scientific management and laboratory study, be restored to normal in a few months, by the judicious employment of measures which will restore normal function of the gland by correcting the causes —focal infection, pelvic derangements and disadjustments of the nervous system.

1650 Broadway

Know the Patient

To know an organ and its diseases thoroughly is the apparent goal of many medical and surgical specialists; but to know the patient thoroughly is the goal that should be set for himself by the true physician.—DR. WALTER FREEMAN.

A Test of Religion

I haven't much use for a preacher who exhorts the members of his flock to pattern their lives after the gentle Jesus and then raises hell with his own family. It's shameful enough when an ordinary godless layman treats his wife like a mule and uses his kids as safety valves for his temper; but when a preacher acts that way, you can lay odds that his religion is just a way to make a living. The test of religion is the effect it has on its followers. If it doesn't make a man kind and gentle and patient, it isn't worth a darn.—ROBERT QUILLEN.

Cooperative Medical Research and Records

Cooperative research by physicians, through an agency controlled completely by physicians, should accomplish more for the advancement of medical knowledge, particularly with respect to the pathologic conditions that seem to arise with advancing years, than any other type of investigative work.

But there should be some clearing house to which all private records could be sent. Records will be of no value to anyone if they are to be destroyed when the patient moves away or dies, or when the physician making them dies.—DR. N. S. DAVIS, III, *Chicago, in* Illinois M. J., *Feb.*, 1930.

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A New Method of Preparing Diathermy Electrodes for the Head and Neck*

By FRANK J. NOVAK, JR., M.D., *Chicago*
Attending Oto-laryngologist, Lake View Hospital

THERE are certain requirements for electrodes used in diathermy, applied to the region of the head and neck, which those on the market, in the experience of many, do not meet. What are these requirements?

Stability: The electrode must be secured so that motion of the patient and the adjustment of wires to the electrode do not disturb the contact. Moreover, the patient should have a sense of security. He should feel that the electrode is snug and that he must not necessarily be on guard against disturbing the contact by slight movement caused by coughing, sneezing or turning the head.

Comfort: The electrode must be comfortable. Good contact must not be obtained by unnecessary pressure nor by the use of bands which are uncomfortable or painful.

Contact: Electrodes must achieve complete and perfect contact of the metallic surface with the skin.

Individuality: Electrodes should be individual, suited exactly to the particular patient, and used on no one else. This appeals particularly to the more fastidious patient. The electrodes should be quickly and easily prepared and should be inexpensive.

In order to devise such an electrode, many types of material have been employed and many methods of holding them in place have been tried. The electrode to be described in this article meets, at least to my mind, all the requirements laid down for an efficient and practical apparatus.

MATERIALS NECESSARY

1.—"S. S. White Quick-Setting Exact Impression Compound."

2.—X-ray foil, 0.005 inches thick.

3.—Small basin of hot water; pair of scissors; ordinary pocket knife; short, wooden-handled screw driver; some small metal cup-hangers; a length of plain black garter elastic, preferably about ¾ inch wide; one small eyelet punch; a box of eyelets; and an alcohol lamp or small Bunsen burner .

One cake of impression compound is usually sufficient for any electrode used about the head or neck. This is dropped into the

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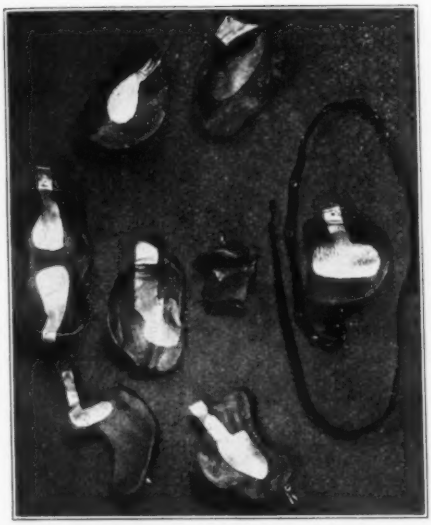

Fig. 1: A Number of Electrodes, Adapted to Various Localities. The Cup-hooks and Elastic Band are Shown.

basin of hot water, at about 130°F. This softens the compound within a few seconds and it is then placed over the area to be treated and slight pressure applied until the compound conforms exactly to the surface to which it is being applied. A cold towel is applied while the compound is in good contact with the surface, to stiffen it, after which it is removed with some care to prevent distorting it. It is dropped into a basin of cold water, where it "sets" immediately. The mould is then wiped dry and it is applied again to the skin, to see that there has been no distortion incident to removing the warm compound from the face.

If the fit is perfect, the next step is to cut out a piece of x-ray foil, conforming exactly to the size and shape of the area to be treated. This foil is next laid upon the compound mould and smoothed over the surface with the thumb.

The next step is to attach the metal to the compound, which is done by heating the screw driver considerably less than red hot and running it rather rapidly over the edge of the x-ray foil. This melts the compound directly under the foil and will cause the metal to adhere securely to the compound. Then the heated screw driver is pressed over the surface of the foil, attaching it more firmly throughout its extent. When this is completed the mould is again plunged into cold water to chill it thoroughly. The fingers are passed over the surface of the mould and it will be found that a small ridge of compound surrounds the metal. This is easily scraped off with the thumb or some suitable instrument.

The two cup-hooks are now attached to the back of the mould. In order to do this satisfactorily, a small piece of compound is softened in hot water and formed into a small cone or pyramid with a flat base. This pyramid is cooled in water to harden it, is picked up with a pair of forceps and the base held at the edge of the flame for a second, until it just begins to run. It is then immediately brought in contact with the back of the mould and allowed to harden. The second piece is attached in the same manner. The screw cup-hanger is held in a forceps and heated to a point where it is less than cherry red. The screw is inserted into the tip of the pyramid and immediately chilled with cold water. The other hook is attached in the same manner. The electrode is now completed and is ready to apply to the part to be treated, there to be held in place with the elastic.

Precautions

The water that is used to warm the compound should not be over 130°F., else it softens the compound too much and it adheres to the fingers, making it difficult to work. Moreover, the unnecessary heat of the compound is uncomfortable for the patient.

In removing the mould from the face, while it is being prepared, considerable care should be taken not to bend or to distort it in any way. This is readily learned after one or two attempts. In determining the place where the hooks shall be placed on the back of the electrode, it is well to estimate this by placing the two index fingers on various portions of the electrode and thus ascertain where the pressure with the two establishes the best contact. These points are marked and the hooks placed there.

Once an electrode has been made, let us say, for the maxillary sinus, it can be adapted to succeeding cases, merely by dipping it into water of about 100°F. and adapting it to the new patient's contours.

These electrodes can be scrubbed with soap and water and can be kept perfectly clean.

Fig. 2: Electrode in Place for Treating the Maxillary Sinus.

Method of Application

After the electrode has been prepared, it is important that it be secured properly, so that a perfect contact between metal and skin is obtained.

The garter elastic is prepared as follows: A length sufficient to pass around the head, with three or four inches to spare, is adequate. With a suitable small eyelet-punch, a sufficient number of eyelets are placed in the elastic, about one-half inch apart. The purpose of this is to permit proper adjustment.

A very small wisp of cotton is spread over the metal of the electrode and moistened with salt solution. The electrode is then placed in position. The eyelet at one end of the elastic is slipped over the cup-hook on the electrode; is passed around or over the head, as the case may be, and an eyelet at the other end is slipped over the other cup-hook. The elastic must be manipulated into the best possible position on the head to secure even contact of the electrode. The tension of the elastic is controlled by moving forward or backward one or two eyelets.

When the electrode is firmly and comfortably attached, the wire leading from the diathermy apparatus is connected by slipping the end of the wire (usually in the form of a hook) through a small hole in the piece of x-ray foil which protrudes beyond the edge of the electrode.

If the electrode has been properly made and carefully applied to the part, the patient is perfectly comfortable and at ease. Movements, such as sneezing, coughing, turning the head and so on can be made without disturbing the contact of the electrode.

30 N. Michigan Ave.

The Cost of Health

The complaint is made about the high cost of sickness. *Is not the complaint actually about the high cost of health? When looked at in this way, the complaint sounds less reasonable. Health is as much of a necessity of life as shelter. One can be happy without fur coats, radios, over-stuffed furniture, automobiles, bootleg booze, vacuum sweepers and the score of unnecessary trifles that make life easier and more pleasant, but one cannot be happy without health. Perhaps health costs too much for people of moderate means to be able to pay for it what it is worth and what it should reasonably cost, but that proposition has not yet been demonstrated and cannot be until health is approached as a necessity of life, as are food, warmth, clothing and shelter.*—Dr. Geo. E. Follansbee, in Survey Graphic.

Carbon Arc Lamps in Dermatology

By Herman Goodman, B.S., M.D., *New York City*

THERE is a place for the carbon arc lamp in the treatment of skin conditions. The emission characteristics must be preselected for the individual case. The following experiences, based on five years of intensive use of various carbon arc and flame lamps, may be useful.

Moist lesions of the skin, non-healing wounds, whether postoperative or non-intentional, and wounds with loss of substance (ulcers) do best with a source of radiation, weak in the erythema-producing ultraviolet rays. There is a carbon, manufactured in Germany and used with a right-angle trim, in a lamp of seven amperes and 50 volts, which is ideal for these lesions. The lamp, under the operating conditions set forth and with the original German carbons, is worthy of the name, non-burning. The carbons are impregnated, with nickel. Counterparts of these carbons are made in this country.

The time of each exposure, for the conditions enumerated, must be long—twenty minutes. Mild heat is produced, of the diadermic[1] infrared, poor visible light, and an erythema-producing ultraviolet which is so restricted in quantity as to be below the threshold value of erythema production.

Superficial infections of the skin, due to staphylococci and streptococci (pyogenic), as in impetigo contagiosa, superficial pustulation of acne, folliculitis from poor barbering, and certain types of ringworm of the non-hairy skin, have been successfully treated, using "A" carbons, 10 millimeters in diameter, at 20 amperes with 55 volts across the twin carbons.

The "A" carbons of the National Carbon Company were formerly known as White Flame carbons. The German-made carbon, of similar emission characteristics, is sold in this country as the "Snow White" carbon. These carbons are cored with cerium earths. The treatment may last from five to eight minutes, at the first exposure of a white man's skin, with the carbons 24 inches from the patient. The period of each exposure may be gradually increased to twenty minutes. When possible, the entire skin surface should be exposed to the radiation, rather than only the area of infection. The sensation of heat is relatively endurable, under the operating conditions mentioned, and most patients prefer to be unclothed. Many restless patients find the exposure conducive to sleep.

The visible light is very intense and there is a very strong emission of intravital or photographic ultraviolet rays, so that very dark glasses are used to cover the eyes. The glasses used by oxy-acetylene welders are very good, because they prevent the passage of harmful infrared, as well as nearly all of the visible light and the ultraviolet rays which cause conjunctivitis.

The ultraviolet emission from the "A" carbons, operated under the conditions given, includes the vital ultraviolet of the specific erythema-producing bands. Patients exposed acquire a tan, if they are capable of doing so, and if they have been under treatment for some time. A white person, already sunburned, or who has previously been exposed to erythema-producing ultraviolet rays does not develop a new coat of tan.

Patients with psoriasis, pityriasis rosea and trichopytid have been treated with the source of "A" carbon, under the electric conditions enumerated. Other patients with lichen planus, infectious eczematoid dermatitis, dermatitis venenata (rhus), herpes zoster, acne varioliformis, furunculosis, parapsoriasis and some forms of essential or idiopathic pruritus, have also been treated.

Technic

The routine technic has been to expose the patients each day, for ten days, and then to give exposures once in five days. The entire body has been irradiated, in each instance. The first exposure has usually been for five minutes, if the patient had dark hair and dark eyes. Marked blondes were exposed for three minutes, at first. Each succeeding exposure had the time increased up to eight minutes or, in persons with seemingly increased tolerance, ten

(1) The infrared must be divided according to some physiologic basis. The following is offered:
Diadermic infrared (from 6,000 to 14,000 Angstrom units)
Endodermic infrared (from 14,000 to 25,000 Angstrom units)
Epidermic infrared (over 25,000 Angstrom units)

minutes. The body was exposed in four positions, front, side, back, side—each time treatment was given.

Two lamps were used, so that the emission covered the trunk, head and limbs about equally. The lamps had twin arcs —four carbons—with reflectors of aluminum-painted sheet iron. No screens were used.

Results

Regarding the results of these exposures, no one, of course, dares say anything about psoriasis. It may not be a disease at all, but merely a physiologic state, with normal periods of decline. To have a patient, or a series of patients, show clearing of the skin with a course of ten exposures, and stay clear for three years, may mean nothing because, tomorrow, one may come in with psoriasis all over again. It has occurred in this work.

Patients with lichen planus of the skin surface have been relieved of the itching following exposure, and the skin lesions have receded; but the time required has been long so that it is difficult to say whether they would not have involuted equally soon without exposure. Hypertrophic lichen planus has not responded.

The moist lesions of infectious eczematoid dermatitis have shown rapid response. In these, every effort was made to locate the primary focus and clear it. This has not always been possible, and recurrences of the widespread eruption have been noted.

The vesicles of dermatitis venenata (rhus) have receded after exposure to this type of radiation. In one patient, one exposure gave relief, so that she did not return until the following year, with a new eruption of dermatitis venenata.

The lesions of herpes zoster dry up after exposure; the heat affords relief from the pain; and any infected vesicles clear within several days.

Acne varioliformis clears after radiation, but new eruptive elements appear later, in nearly all patients.

The patient with furunculosis is afforded relief, but the infrared component of the emission may be responsible for this.

Itching is relieved in some patients; not at all in others.

The treatment of pityriasis rosea by means of the ultraviolet emanation of mild, erythema-producing radiation suggests sophistication. Patients have been relieved of the eruption, but it is not beyond question whether they would not have been free without it. On the other hand, areas of skin have purposely been left unexposed, and these areas have shown the eruptive elements persisting after the exposed areas cleared. In a recent instance, the herald or mother patch persisted, despite exposure to the radiation, after the general eruption had disappeared. Pityriasis rosea is a self-limiting disease and it is difficult properly to evaluate any form of treatment.

Accuracy is Necessary

The need for some isolation of reactions to various conditions of operation of ultraviolet sources should not be questioned. The following experience may be worth recording.

The beneficial action of non-erythema-producing radiation on wounds with loss of tissue (ulcers) and a warning against the use of strongly erythema-producing radiations was questioned, on the basis of one experience with one patient who had been exposed to the radiation from a clinical model of a mercury-vapor-arc-in-quartz apparatus; air cooled; 4 amperes; 75 volts; direct current; mercury anode type. The patient was presented with a photograph, taken before treatment exclusively by radiation, and there was no doubt that the ulcer had healed. An examination of the lamp was made, and it was found that it had been washed off each day, before use, with a commercial alcohol solution, denatured with formaldehyde, and the layer of formaldehyde had polymerized into sugar, making a coating impervious to the erythema-producing radiations. It was possible to expose the back of a white person, previously untreated by the sun or by artificial ultraviolet rays, for almost two hours, at 24 inches from this apparatus, without any evident erythema being produced. This was the burner which "effectively healed" a leg ulcer! Laboratory and clinical studies convince me that filters applied to the mercury arc in quartz are essential to the wider use of this instrument in the treatment of skin conditions.

Rationalization of ultraviolet therapy will depend on the statement of reproducible factors. *One source of ultraviolet rays does not satisfy every need of every patient.* Since a choice of emission characteristics is offered, it is important that the factors be stated, in terms of physics or in terms of biologic equivalents.

Moist lesions and open wounds respond to factors of nickel-cored carbons, made in Germany under the trade name of Nonburning, when used at seven amperes, in a right-angle trim, at 50 volts across the carbons, with an 8-millimeter carbon at the upper positive and a six-millimeter one at the lower negative, on direct current.

A fairly long series of other dermatologic conditions do well under exposure to a variety of carbon known as "A" or "Snow White," impregnated with cerium earths, which does not produce a clinical erythema when operated at 24 inches from the skin, at 20 amperes and 55 volts across the carbons (twin trim) of 10 millimeters, both positive and negative on direct current: I have not considered dermatologic conditions which I have found do best on treatment with erythema-producing radiation above threshold value. These will be published later.

18 East 89th Street

Why Does Radium Succeed or Fail in Cancer?

By Frank E. Simpson, M.D., *Chicago*

So much has been said about the success of radium in cancer that it may be of interest to turn about and speak of some of the failures and mistakes in its use.

Why does radium succeed in curing cancer, and why does it sometimes fail? There are three elements that enter, in varying degree, into this problem: The radium equipment; the operator; and the cancer.

The Equipment

While there is scarcely a community in the United States, in which an adequate x-ray machine and those competent to operate it may not be found, with radium the situation is different. Few communities have, at the present time, adequate amounts of radium for the treatment of cancer, or those skilled in its use.

The total amount of radium known to be used for the treatment of cancer in the United States is estimated to be about 65 grams. Two-thirds of this amount is used by 48 groups of physicians. The other one-third is owned by about 240 individuals, in amounts averaging 75 milligrams—a quantity totally inadequate for treating many types of malignant disease. There are no hospitals in Chicago equipped with even one gram of radium for a "radium bomb," nor with a radium laboratory, indicating that all the present pother about cancer has had little effect in developing practical ways and means for its cure by this method.

The equipment necessary to treat cancer depends, to some extent, on the class of cases treated. The dermatologist may get along very well with a few 5- or 10-milligram plaques, which usually suffice for superficial skin cancer. The gynecologist may require a few 50-milligram tubes, although we believe this quantity inadequate for certain malignant conditions. The radiologist should have, in addition to other equipment, a "radium bomb," containing at least a gram of radium, and a radium laboratory.

The "Radium Bomb"

The socalled "radium bomb" consists of at least a gram of radium, which is enclosed on four sides by a metal shield or case. The shield is open at the top and bottom.

In the practical application of the "radium bomb," a wooden box, varying in height from 6 to 10 or more centimeters, is first strapped to the patient over the lesion. The radium shield is then lowered over the box, so as to encase it on four sides, and the "radium bomb" is laid on the box, through the upper orifice of the shield.

Deeply-seated lesions may thus be irradiated or "bombed" without injury to the patient, who is protected by the sides of the shield from the lateral radium rays. Unfortunately, few hospitals in America are equipped with a "radium bomb."

The Radium Laboratory

The treatment of cancer by the insertion of radon tubes—intratumoral or interstitial irradiation—has been found to be of the utmost value, but it is a method to be used with discretion.

We have often pointed out the advisability of having a radium laboratory at hand when the implantation of radon tubes is contemplated. By means of the laboratory, the certainty of using "live tubes" may be assured and "dead tubes" may be discarded. Moreover, it is seldom possible to calculate in advance the exact number of tubes necessary for implantation in a given tumor. A radium laboratory at one's command prevents the catastrophe of suddenly running short of tubes.

If metastases are suspected or if the chances of a "cure" of the local lesion are poor, the implantation method should not ordinarily be used. Sometimes, of course, implantation of tubes in the cancer is done prior to operative removal, as in cancer of the breast, etc.

Radon Tubes

Radon tubes, for implantation in tumors, have been made of various materials. The first tubes used for intratumoral treatment were made of metal or glass. While many good results were obtained, there were some disadvantages connected with the use of glass, chief of which was the acute reaction in the tumor.

Failla introduced pure gold tubes. One of the theoretical advantages of gold is the absorption of a large percentage of the beta rays by the walls of the tube.

Practical experience with gold tubes has shown that certain cases, fortunately few in number, develop an intractable neuralgia after their use when they are left permanently in the tissues, particularly in the tongue. The exact cause of this neuralgia is not known.

Casting about for other materials for radon tubes for permanent implantation, we have tried pure lead tubing and also lead glass, containing 55 percent of lead. It is well known that ordinary bullets are borne with impunity by the tissues, and our experience indicates that lead ampules may become encysted and tolerated in the same way.

The object in using metal of any kind for radon ampules is to absorb the larger part of the beta rays, the action of which may be undesirable. The fundamental principles in the implantation of radon tubes have been outlined in my book on "Radium Therapy." We shall soon make a further report on the use of radon ampules made of pure lead tubing and other materials.

The Operator

Unfortunately, at the present time, many patients are being burned, sometimes seriously, with radium. In some quarters, this has led to a fear of radium and a prejudice against it. In other cases, patients have been treated with entirely too small quantities of radium, and the possibilities of cure have thus been taken away.

Errors by the operator can be remedied only by the development of judgment and caution in the use of radium. In other words, experience in the use of radium is the one thing needed, in order to give patients with cancer the true benefits of radium treatment.

It must be admitted that even among so-called experts there is not the desired unanimity of opinion about methods of treatment. This lack of agreement turns largely on one thing—the equipment possessed by the operator. If one has one or more grams of radium and a radium laboratory, a different technic is commonly used from that employed by an operator who owns or rents 25 to 50 milligrams. But even experts, with the most adequate equipment, naturally differ somewhat in their methods.

Summing it all up, it seems axiomatic to say that the most complete radium equipment must be at hand and that it must be used with some judgment, if failures in the cure of cancer are to be minimized.

The Cancer Itself

We take the view that operable cancer should, with some notable exceptions, be operated upon.

There is, naturally, some difference of opinion among surgeons and radium experts as to what is operable. F. C. Wood recently remarked: "To say that 20 percent of the cancer patients who enter a hospital are operable, is certainly a very optimistic exaggeration of the conditions applying all over the country." This estimate indicates that at least 80 percent of cancers, by the time they are recognized, are beyond help from surgery, from the standpoint of a "cure."

Radium has had its most striking and uniform success in cancer of the skin, lip, mouth and cervix uteri. There are, of course, a number of other fields besides cancer in which radium is signally useful.

Provided the necessary radium equipment and experience are at hand, success or failure in the treatment of cancer depends largely on:

1. The radio-sensitiveness of the tumor.
2. Its stage of development.
3. Situation of the tumor.
4. The general condition of the patient.

Radio-Sensitiveness of the Tumor

Let me give short sketches of two cases, illustrating the radio-sensitiveness of tumors.

Case 1: M. X.; male; aged 43; was referred for the radium treatment of a large mass in the right hypochondrium. The tumor extended from the costal arch to the umbilicus and was apparently larger than a child's head. This growth had been preceded, a year before, by a "sarcoma" of the right testis, which had been surgically removed. Complete disappearance of the abdominal tumor occurred within a few weeks, under radium treatment, and the patient was known to be in good health more than 5 years later.

This was probably a case of "teratoid" carcinoma, a tumor well known to be sensitive to radium.

Case 2: M. G.; female; aged 39; was referred for the radium treatment of a mediastinal tumor. There was a large mass in the thymus gland region, measuring about 10x10 centimeters. Dullness on percussion, absence of breath sounds and the x-ray plates demonstrated the tumor. There had been several attacks of severe hemoptysis.

Under the "radium bomb," the patient recovered and has now been clinically well for over 2 years. This was probably a case of lymphosarcoma.

The general principle may be laid down that superficial and accessible tumors, if radio-sensitive, may frequently or even usually be cured by radium. If deeply seated tumors are radio-sensitive, they may occasionally resolve under deep radium therapy. If not radio-sensitive, they can not be cured by any form of irradiation treatment. Fortunately, growth restraint of such tumors can sometimes be accomplished with irradiation, by the production of autolysis, fibrosis, interference with blood supply, etc.

Stage of Development

The diagnosis of cancer is often too long delayed. It has been estimated that at least six months elapse before average patients with cancer consult a physician.

Very large cancers (those 4 or 5 inches in diameter), situated in the skin or elsewhere, can seldom be cured by irradiation. In such cases, there seems to be a lack of vital reaction on the part of the tissues, which is essential to successful irradiation.

Referring to carcinomatous glands, secondary to carcinoma of the mouth, breast, etc., Heyward-Pinch, of the London Radium Institute, recently said he had tried all kinds of procedures and, frankly, he did not know what was the best method of treatment.

Surgery and radium combined seem to us the best method, the exact technic of combined treatment depending largely on the operator. "Radium bomb" treatment, followed in suitable cases by excision, may be used in treating secondary carcinomatous lymph nodes.

Situation of Cancer

While the outlook for the cure of accessible cancer is greatly improved under the newer methods, cancer that is inaccessible is very difficult to cure. We have many times pointed out the difficulties in the cure of esophageal or rectal cancer by means of radium. A radium tube, introduced through the lumen of a growth in the alimentary canal, lies, as a rule, *too near* the growth for successful irradiation. The dangers of implanting radium tubes in such situations should not be forgotten.

General Condition of the Patient

The presence of cachexia, syphilis or diabetes renders the cure of cancer more difficult. Finally, the adequate treatment of cancer requires, as a rule, the generous cooperation of the patient, the pathologist, the surgeon and the radiologist.

59 E. Madison St.

CLINICAL MISCELLANY

Notes from the American Physical Therapy Association

THE fortieth annual meeting of the American Physical Therapy Association took place in Chicago, October 8 to 10, 1930. A few of the more important papers read are abstracted here.

THERAPEUTIC FEVER

By Dr. J. Cash King, Memphis, Tenn.

It is now generally conceded that fever is a conservative reaction of the body against certain morbid conditions, as it occurs in all self-limited diseases, but is absent in long-continued, chronic conditions like syphilis.

Within the past decade or two, pyretotherapy is assuming considerable importance in several conditions, particularly neurosyphilis.

There are five ways in which therapeutic fever can be produced. These will be named and discussed.

1.—*Injection of foreign proteins*: The reactions from protein shock, as by the intravenous injection of typhoid vaccine, are so severe and cause such unpleasant general symptoms that few patients will tolerate a full series of such injections.

2.—*Inoculation with malaria*: The malaria treatment is certainly not without danger (the death rate varies from five to ten percent); it is irregular and uncertain, the infection sometimes dying out when the treatment is only well begun, and we have no way of controlling it, except by terminating it altogether; the proper strain of plasmodia cannot be kept alive except where many patients are receiving the treatment; and a fair number of persons, especially negroes, are immune to malaria.

3.—*The high-frequency, electro-static or radio wave method* is really in the experimental stage, so far. The apparatus is complicated and expensive; several hours are required to generate the necessary degree of fever; and, unless the patient's skin is kept dry by a current of hot air, the drops of sweat which exude are liable to boil, with uncomfortable results.

4.—*Hot baths* have the advantage of being readily available anywhere; but it requires a long immersion to raise the patient's temperature even to 102°F., and severe headaches almost always occur.

5.—*Diathermy* seems, at present, to be the method promising the most safety and satisfaction in the production of therapeutic fever.

The technic consists in placing a special jacket, containing two or four electrodes, around the patient's chest; insulating him against loss of heat, by arranging the bed with a rubber sheet, a blanket, the patient, another blanket, another rubber sheet, and one, two or more blankets, well tucked around; and then gradually increasing the current until it reaches from 3,000 to 6,000 milliamperes.

The patient must be carefully examined before beginning this treatment, to be sure that he has no organic weakness which might result in danger and, while the heat is applied, the pulse, temperature and respiration are recorded every fifteen minutes, the current being continued until the temperature reaches 104°F., or six degrees above the patient's normal.

After about an hour of this, the patient becomes very uncomfortable, but this discomfort may be relieved by a dose of hyoscine, morphine and cactoid ("H.M.C. No. 1").

When the temperature reaches the desired height, the current is shut off and the patient left in the pack as long as is indicated. The subsidence of the fever will be very slow, so long as the blankets are not removed. If it seems wise to lower it more promptly, this may be accomplished, at any time, by the gradual removal of the insulation.

This type of treatment has given good, if not brilliant, results in various afebrile diseases, notably neurosyphilis (paresis and tabes), multiple sclerosis and in the later stages of encephalitis, just after the acute phase is past. It may be considered a form of non-specific therapy.

Hydro-Gymnastics in Infantile Paralysis

By Dr. James C. Elsom, Madison, Wis.

The old idea that nothing could be done for a patient with anterior poliomyelitis until months after the acute stage was over is now of the past or is rapidly passing. Moreover, much harm can be done to these patients by sinusoidal galvanism, when used too enthusiastically, as frequently happens.

In the clinic of Dr. Charles L. Lowman, of Los Angeles, Cal., some of the most modern work along this line is being done; and we are getting some very gratifying results in our clinic at Madison.

The basis of this newer treatment is the fact that resumption of function comes only from self-initiated, voluntary movement made by the patient. The impulses sent out over the affected nerves are so weak that they are unable to cause contraction of the muscles when they work against gravity, but can do so when the weight of the limbs is almost wholly sustained by sling suspension, by the smooth top of a table dusted with talcum powder to eliminate friction or, best of all, by immersing the patient in water, which almost abolishes the action of gravity upon the limbs, while permitting entire freedom of motion in all directions.

The tank which we use for this purpose is constructed as shown in Fig. 1. The top edge is about three feet above the floor level and the water compartment is about two feet deep. It is large enough so that it may be used for children up to ten or twelve years of age. The board at the back is adjustable, so that it can be arranged to support the head and shoulders of children of various sizes. The shape of the tank is such that the nurse in charge can easily reach any part of the patient. With the younger children, we place a number of floating celluloid toys in the tank, so that the little ones have an incentive to make voluntary reaching motions with the arms and legs.

A series of purposeful movements is devised for each patient, designed to exercise the affected parts, and these are repeated daily. The psychic, as well as the physical, effect is excellent. The children soon come to look forward eagerly to the hour for their "swim."

This system of hydro-gymnastics is useful in other orthopedic conditions, as well as in poliomyelitis.

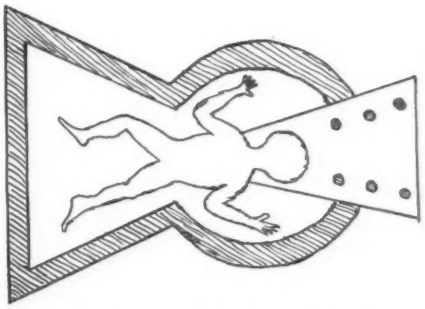

Fig. 1: Diagram of Hydro-Gymnastic Tank, with Adjustable Support for Head and Shoulders.

Environment and Health

By Prof. Albert Bachem (Biophysicist), Chicago

The factors in the environment which, perhaps, have the profoundest effect upon health are noise, temperature, humidity and radiant energy.

Noise is wholly fatiguing and destructive, physically and psychically.

The optimum conditions of heat and moisture are in the medium ranges. Chilling of the skin, if not carried to excess, has a stimulating and invigorating effect upon the circulation and the body processes in general.

The clothing of men, today, is senseless and unhygienic. Women's dress is more rational. A man lives, continually (inside his clothes), in a tropical climate having a temperature of 85° to 90°F. and a humidity of seventy percent or higher. Constant sweating causes this secretion to lose its characteristic acidity, and the alkaline reaction of the skin which results favors mycotic infections. Moreover, lack of evaporation interferes with the circulation in the mucous membranes of the nose and throat, causing congestion and leading to infections.

Clothing should be porous and loose enough to permit free circulation of air within it, without constrictions at the waist and neck.

Radioactivity, which has a profound effect upon metabolism, is chiefly present near the ground and in "living" water—springs and swift rivers. Primitive man had an advantage over us, in that he lived close to and slept upon the ground.

Light—including the infrared, visible and ultraviolet rays—has diverse physical effects, according to the wave lengths of the radiations. Long rays cause reduction; short rays, oxidation; those at about 4,000 A.u. stimulate mitosis.

The visible red and the short ("near") infrared rays penetrate deeply enough to reach the blood stream (an inch or more), generating heat; the long ("far") infrared rays, not so much; the short visible (violet) and the long ultraviolet rays penetrate the entire thickness of the skin, but little or no farther; the short ultraviolet rays (3,000 to 2,000 A.u.) act very superficially. These shorter rays produce less heat and more chemical reactions. Antirachitic effects are due, almost wholly, to activation of the sterols in the horny layer of the skin, these being subsequently absorbed. The germicidal effect of the very short ultraviolet rays is strictly superficial.

The pigmentation of the skin which follows exposure to certain wave lengths protects the blood against undue chemical (oxidation) effects and hardens the skin against external influences. These rays increase the leukocytes and the endocrine activities of the skin, change its chemical reaction and act upon the autonomic nervous system.

An occasional excessive sunbath, as on a Saturday or Sunday, does more harm than good; and the same is true of a careless exposure to a quartz-mercury lamp. The General Electric Co's. "Sunlamp" is the most rational for domestic use.

We should remember that disease frequently results from artificial changes in our environment and should set about reestablishing more normal surroundings, as an antidote to the various evils of civilization.

Reported by GEORGE B. LAKE, M.D., Chicago.

RECENT ABSTRACTS

The Mode of Action of Thermotherapy

In *Bull. Battle Creek San.*, Apr., 1930, Dr. Paul Roth summarizes the mode of action of thermotherapeutic agents as follows:

The ruggedness of the human body is primarily dependent upon the activity of extremely delicate specialized tissue cells which, in the process of evolutionary division of labor, have lost their individual embryonic power of adaptation.

The skin, together with the mucosa, is the "middleman" between the body's external environment and the blood and tissues, in the same sense as the lymph is the middleman between the blood and the living cell. It acts as a transformer, selector, and regulator of the energy transmitted to the body machine from its environment.

The mode of action of thermotherapeutic application is intimately related to and dependent upon the complex functions of the skin and mucosa. Chiefly through the former, the activities of individual organs and functions of the body as a whole can be either excited or depressed.

Thermotherapeutic agents should be so conducted as to act as much as possible in unison with the normal activities and physiologic processes, which are under the intimate control of the skin and mucosa, the gateway and eminently the defenders of the processes of life in the body.

The restoration as well as the preservation of health depends, in a degree as yet not sufficiently appreciated, upon a healthy skin, well trained and daily drilled in all of its functions. The daily exposure of the bare skin to air, sunlight, water and the proper use of artificial substitutes for the application of radiant heat and various types of light rays, diathermy, etc., are all valuable agents for the promotion and restoration of health.

Intravenous Urography with Uroselectan

Various attempts have been made to render the urinary tract roentgenologically visible, including local injections following ureteral catheterization.

In *Am. J. Surg.*, Feb., 1930, Dr. M. Swick, of New York, describes intravenous urography as practised first by means of selectan neutral —a substance, synthetized by Drs. Binz and Rath, of Hamburg-Altona, which contained 54 percent of iodine. It was found that, with its use, the urinary tract could be visualized and that from 75 to 80 percent of the injected iodine component was eliminated in the urine.

Certain disturbing reactions following the use of selectan neutral led to further study for a more suitable medium, with the result that uroselectan was finally produced. This substance is non-toxic, very soluble in water and, under normal conditions, is excreted unchanged through the urinary tract within 8 hours. to the extent of 90 to 100 percent. The iodine in the substance continues firmly bound in its molecular bond. Iodism has never been observed following its clinical use. The tolerance of uroselectan is very great.

Visualization, poor or good, is dependent

upon the functional activity of the urinary tract, but non-visualization does not necessarily mean permanent renal functional inhibition, for the secretory activities of a kidney can be temporarily hindered.*

For intravenous injection, from 33 to 40 Gm. of uroselectan are dissolved in doubly-distilled water, to a volume of 100 cc., filtered and sterilized. A child of 7 years receives half and a child of 2 years one-quarter of the adult dose. The syringe is preferable to the gravity method. The injection is made in two stages, at intervals of from three to five minutes. The first roentgenogram is usually made about 15 minutes after the last injection, others after suitable intervals.

The scope of this method is mainly to replace ureteral catheterization, when that is dangerous or impossible.

Samples, only, of uroselectan are available in the United States at the present time.

Medical Uses of Rays of 4 to 8 Angstrom Units

The x-rays utilized in therapeutics do not exceed 1 Angstrom unit. Bucky's supersoft "grenz" rays vary from 1.5 to 2.5 A.u.

In *Brit. J. Actinother. and Physiother.*, April, 1930, Dr. J. Saidman, of Paris, France, refers to the work by which x-rays of 4 to 8 A.u. have been produced. These are also known as "K-Rays of 8 Angstrom Units." There are several special apparatus for the production of such rays. The new rays are much softer than any x-rays so far used in medicine.

Regarding therapeutic results with these rays, Dr. Saidman says: "At the Institute of Actinology (Paris), treatment of various dermatoses is continuing, in order to determine the indications. Moreover, I consider that rays of 4 to 8 A.u. should give favorable results in general affections in which actinotherapy is already indicated. For the moment, the technic is very delicate; up to the present the results do not present any evident superiority over the usual radiotherapy and actinotherapy, except in certain cases to which I hope to return on another occasion."

Obesity Treated by Faradism

The treatment of obesity described by Dr. Norman Daniels in *Brit. J. Actinotherapy*, Mar., 1930, is a modification of Bergonie's electric chair method.

The patient is placed upon a large plate electrode, with a second electrode behind his back and others of smaller size under the legs and arms. Weights (sandbags) are placed upon the abdomen, legs, etc. and the rhythmic contraction and relaxation of the muscles, due to the passage of a Faradic current, produces increased work, with consequent breaking down of the excess fat. Dietary regulation and glandular therapy are associated with the physical therapy. Satisfactory results, in a large series of cases, are reported. The number of treatments varies from 12 to 26.

*Several roentgenograms of the urinary tract, in clinical subjects varying from infants to adults, obtained by the use of uroselectan, were published with this article.

Radiation Treatment in Some Skin Conditions

The value of radiation therapy (radium, x-rays and ultraviolet rays) in skin and other diseases is discussed by Dr. H. A. Chapin, of Jacksonville, Ill., in *Illinois M. J.*, Apr., 1930.

For severe cases of **seborrheic dermatitis**, the treatment has been entirely confined to body radiation with the mercury-quartz lamp, beginning with 3-minute exposures at 36 inches distance, both front and back.

The average case of **herpes zoster** is given one-third skin dose of x-rays, over the spine, with 3 mm. aluminum filter, repeated if necessary on the second or third day following. Quartz lamp treatment is started at once, with general body irradiation.

In **acne vulgaris**, irradiation must not be pushed too quickly. The author believes that the best results are obtained by fractional doses, 10 days to 3 weeks apart.

The pain of **carbuncle** is relieved and recovery hastened by x-rays. Dr. Chapin has treated more than 200 cases within the past few years, many of which, he believes, would have ended fatally had it not been for the relief by radiation.

Diathermy in Seminal Vesiculitis

In *Arch. Physic. Therap., X-Ray, Radium*, Apr., 1930, Dr. W. S. Pugh, of New York, gives his technic for the treatment of seminal vesiculitis by diathermy.

A well-soaped tin electrode, about 5 by 7 inches, is placed over the abdomen. The prostato-vesicular electrode is inserted in the rectum. The current is increased about 100 m.a. every 30 seconds, until the point of tolerance is reached (usually about 1,500 m.a.), corresponding to a temperature of 114° to 116°F. The duration of each treatment is about 40 minutes, but depends on the patient's reactions. The treatments are given twice a week for a month, when there is usually marked improvement.

About 60 percent of 153 cases treated by this method were completely cured. Dilatation of the urethra, to facilitate drainage, and massage of the vesicle are practical adjuncts.

Ultraviolet Radiation from Tungsten Filament Lamps

The possibility of obtaining adequate ultraviolet radiation from tungsten-filament electric lamps is discussed by F. Dannmeyer and H. D. Griffith, in *Brit. J. Actinotherapy*, Feb., 1930.

The ordinary incandescent electric lamps have bulbs of lead glass, which is practically opaque to radiation shorter than 3,300 Angstrom units. When fitted with quartz or ultraviolet-transmitting glass, emission of the ultraviolet rays is possible, but the efficiency of the radiation is soon decreased, owing to the rapid destruction of the lamp filament by the necessarily increased temperature.

The authors describe a lamp of the gas-filled type, overrun to give a filament temperature of 2800 C., with a bulb of thin uviol glass, transmitting 60 percent of the biologically active

radiation. The bulbs are designed for a life of 300 hours, during which time the ray emission does not decrease more than 5 percent. A first-degree erythema can be produced in 90 minutes from such a lamp, at 1.50 meters distance.

The authors express the opinion that there is no doubt it is possible to reproduce, by means of tungsten filament lamps fitted with sufficient (chrome steel parabolic) reflectors, the full ultraviolet intensity of summer sunshine and skyshine, over restricted areas of diameter approximately equal to that of the reflector of the lamp, the spectrum of the radiation being very similar to that of sunlight.

BOOKS

Kromayer: Cosmetic Treatment of Skin Complaints

THE COSMETIC TREATMENT OF SKIN COMPLAINTS. With Especial Reference to Physical Therapy and Scarless Methods of Operation. By *Professor E. Kromayer, Berlin. Second Edition. London: Humphrey Milford, Oxford University Press.* (*Through Oxford University Press, New York City.*) 1930. Price $2.00.

This little book of 104 pages, now in its second edition, represents the fruit of thirty years' observation, examination, experiment and discovery in the field of cosmetic dermatology, by Kromayer himself.

It is not presented as a textbook, but an account of personal experiences and therefore, while it contains the flavor of the author's own methods, it does not contain others which may be familiar to his readers. Undoubtedly the directions given as to technic will, if followed, give the results obtained by Kromayer himself. To this extent every page has value.

The author is not concerned with dermatologic diseases as such, but only those lesions, whether serious or harmless, which are a blemish to the possessor and a source of mental suffering. Neither does he consider all possible methods of technic, but only those which he has found will leave the patient cosmetically unblemished to the beholding eye. This decreases the scope of the book, but increases its value to the cosmetic dermatologist.

The remedies presented are as follows:

Medical treatment: Here are the various salves, lotions, creams, pastes and poultices, with their composition, advantages and drawbacks, (especially those leaving pigmented areas).

Caustics: He considers these "dubious measures." since they are liable to do too much or too little and are always followed by a cicatrix.

Electrolysis: By this he means, specifically, negative electrolysis, causing an alkaline destruction of tissue which has the same disadvantage as chemical caustics in causing scars, except in the case of depilation, for which he has devised special insulated needle electrodes.

Heat: This is restricted to ignipuncture with hot cautery points. There is no mention of electrocoagulation, desiccation nor the use of radiant heat.

Cold: This is limited to freezing with CO_2 snow for destructive effects and is open to the same objections as chemical caustics. Ethyl chloride spray is used for local anesthesia.

Light: Under this title he includes two treatments with his water-cooled, mercury-arc lamp: One is the entire spectrum from the incandescent mercury vapor, and the other is only the longer wave lengths, obtained by screening out the shorter wave lengths by a blue filter, whose nature he does not disclose. The unfiltered he uses for superficial, the filtered for deep skin lesions, where pressure is also requisite. The air-cooled mercury vapor arc he uses for generalized superficial reactions. Nothing is said as to radiant heat nor heliotherapy.

X-rays and gamma rays (radium) he considers to give the most admirable cosmetic results, if used properly, but they are also liable to give the worst results, if temporarily used. He points out that, while pigmentation is to be expected as a sequel to the healing of some diseases, such as acne, eczema, psoriasis, etc., it is more marked after the use of radiant energy and drugs producing an inflammatory reaction.

He prefers to divide the total estimated dose of x-rays into six equal daily doses, for safety

Surgery: Kromayer has devised a set of cylindrical knives or punches, from 0.8 to 10 mm. in diameter, for removing discs or columns of diseased tissue, also a set of rasps or burrs and a set of drills to be used with a dental engine. He does not refer to any reparative or reconstructive plastic surgery, but limits himself to skin grafting for tattooed areas and excisions for wrinkles.

F. T. W.

Jones: Injuries to Joints

INJURIES TO JOINTS. *By Sir Robert Jones, Bart., K.B.E., C.B., Ch.M. (Liverpool), F.R.C.S. (England, Ireland and Edinburgh), F.A.C.S. (U. S. A.), Emeritus President, British Orthopedic Association; President, International Orthopedic Association; Consulting Orthopedic Surgeon, Royal Southern Hospital, Royal Infirmary, Liverpool, and St. Thomas's Hospital, London. Third Edition. London and New York: Humphrey Milford, Oxford University Press.* 1930. *Price* $2.00.

This little manual or primer of treatment of joint injuries was first issued during the World War, with the object of helping, in the diagnosis and treatment of such injuries, the many civilian practitioners who had taken up military service.

It still retains its purpose as a manual of first treatment of joint injuries for practitioners and students. The position of the author as the leading British orthopedist assures that the treatments recommended are orthodox and effective.

THE SEMINAR

CONDUCTED BY
MAX THOREK, M.D. (*Surgery*)
GEORGE B. LAKE, M.D. (*Medicine*)

[NOTE: Our readers are cordially invited to submit fully worked up problems to the *Seminar* and to take part in the discussion of any or all problems submitted.

Discussions should reach this office *not later* than the 1st of the month following the appearance of the problem.

Address all communications intended for this department to *The Seminar*, care CLINICAL MEDICINE AND SURGERY, North Chicago, Ill.]

PROBLEM NO. 9 (MEDICAL)

Submitted by Dr. A. S. Thompson, Havelock, Ont., Can.

(See CLIN. MED. AND SURG., Sept., 1930, p. 696)

Recapitulation: A man of 70 years, who had always been in excellent health and normally weighed 165 pounds, had an attack of influenza in March, 1928, after which he lost weight and strength and had a rapid pulse on exertion. In December he weighed 140 pounds.

In the winter of 1928-29 he had three attacks of "influenza," and in the spring, his weight having fallen to 121 pounds, he had a complete examination, the only abnormal findings reported being a blood pressure of 126/80 (rather low for a man of his age.—Ed.); hemoglobin, 56 percent, with 4,450,000 red cells; pulse 90; hard edema of ankles, disappearing after a night's rest. His appetite was exceedingly good; his bowels moved three or four times a day (formed stools); and he had no pain.

He was treated for the secondary anemia and took a months vacation, but continued to lose weight and strength until, in November, 1929, he weighed only 113½ pounds and suffered from extreme weakness.

Requirements: Suggest diagnosis, prognosis and treatment.

DISCUSSION BY DR. HALDOR CARLSEN, CHICAGO, ILL.

In this case no Widal test was reported, but there is a possibility of a mild typhoid or paratyphoid infection. The blood may react to the Widal test only in low dilutions (1:400). The history as to travel may throw some light on the problem.

One must rule out the possibility of undulant (Malta) fever, which is not rare in this country, due to drinking of milk from cattle infected with *B. abortus* (Bang).

One other condition which must be considered is intestinal parasites (hookworm or tapeworm).

If all these can be ruled out, we must conclude that the attacks of influenza lighted up some condition which was latent in this patient.

The treatment and prognosis would depend entirely upon the condition actually found after exhaustive examination.

DISCUSSION BY DR. D. KLEMPTNER, CHICAGO, ILL.

The paucity of positive findings, coupled with the prolonged and obviously serious course of the case, gives an unusual interest to the problem.

The outstanding points of the case are: loss of weight, anemia, feverish onset and several bulky, formed stools daily. Primary anemia is easily ruled out by the absence of typical blood findings, of achylia and of neurologic signs.

Hodgkin's disease, involving the deep-seated abdominal glands, may show a rise of temperature and anemia; the absence of an enlarged spleen, of skin lesions, and of adenopathy argue against this condition.

Chronic tuberculosis does not fit in, because there are no localizing signs; and the formed, frequent bowel movements are not characteristic of tuberculosis of the cecum or colon.

Toxicity of a goitre—substernal or suprasternal—may be considered in connection with the loss of weight, the pulse of 90 and the frequent stools; but we would expect more positive heart signs in a man of his age—palpitation, a higher pulse pressure, probably a higher blood pressure and fibrillation; also an increased basal metabolic rate.

The syndrome of emaciation and frequent stools suggest disease of the pancreas —chronic pancreatitis or cancer of the pancreas. Chronic pancreatitis is usually secondary to gall-bladder trouble, which our patient denied. Local signs need not be present in malignant neoplasm of the head of the pancreas until the common bile duct is compressed, which occurs fairly early in the course of the disease; nor of the tail of the pancreas until the nerves are involved, causing pain, or until the stomach and duodenum are compressed, which occurs late in the course of the disease.

Cancer of the tail of the pancreas seems the most probable diagnosis. The finding of large amounts of fatty acids, in the form of globules, and much undigested meat in the feces, after a suitable test meal, would clinch the diagnosis.

The treatment is palliative.

Discussion by Dr. J. S. Lankford, San Antonio, Tex.

Dr. Thompson presents a very interesting case and one difficult of diagnosis. The patient has been in excellent health for sixty years, is of good physique and satisfactory weight, but he has reached the vulnerable age of seventy, when almost anything may happen to the human body.

From the history given there seems to have been no evidence of focal infection, nor any indication of chronic disease which might be revealed by a group of symptoms. All the organs seem to have been sound, up to the date of the first attack of influenza. This and the subsequent attacks profoundly affected the patient. But where did the burden fall? Apparently not upon any of the organs of the chest or the abdomen, nor upon the nervous system.

We must look deeper for the truth. Of first importance is the blood. There is some impairment here, especially in the hemoglobin and the white count, the reds being maintained at a fair point. In the absence of disease of the heart and kidneys, we must assume that the swelling of the ankles while on the feet, subsiding when at rest, is an indication of poor blood and weakened blood vessels. Even when the hemoglobin and the count is at a fair average point, we must think of toxicosis coming from some source. The chances are that there is a persistent streptococcemia from the repeated attacks of influenza; but there may be much more. The plasma holds many things of which we are ignorant and which, so far, cannot be determined by any known tests. Worlds of important information, yet undiscovered, are hidden here. What do we know about heredity and immunity and a dozen other things that reside in the blood? It would have been interesting to have the differential count. A decided lymphocytosis would suggest the colon as a source of toxemia

The second point of inquiry should be the endocrines. We know now that old age is essentially the failure of the internal secretions. Cold hands, a rather rough skin with well marked dermographia, with lapses of thought would suggest a mild degree of hypothyroidism. The blood pressure at 126 systolic might not indicate hypoadrenalism; but it must be remembered that an unknown toxic state would probably keep the blood pressure above what it should run, and therefore this systolic reading might be deceiving. The adrenal white line would clear this up. An exceedingly dry, smooth skin and a tendency to headache, would indicate a disturbance of the pituitary.

The continued and grave loss of weight, which threatens to lead on to destruction and death, must come from the disturbance of the body cells, that ultimate digestion where the failure of nutrition may be located in some cases. Something has powerfully affected the proper function of the cell itself, and the patient has no assimilative power and can not appropriate the foods to the needs of the body. This could be due to pluriglandular insufficiency.

One point more should at least be considered—a complication that might have arisen when the patient was "down and out"—and that is entamebiasis. This disease is rather widespread over the United States and is increasing, and should be thought of where there is a persistent free movement of the bowels and loss of weight, whether or not there is blood or mucus or griping, and in spite of a negative finding in the stools. The prognosis is not good.

As to treatment, internal remedies can not avail much, for medicine fails of assimilation the same as food, and we are compelled to resort to hypodermic and intravenous medication. I should be much disposed to use adrenalin, thyroxin, and pituitary solution, in suitable doses. There would be more promise in this line of treatment than any other. If the endocrines can be stimulated to action, there is some possibility of benefit.

In view of the fact that entamebiasis may be possible in an irregular form, the free but cautious use of acetarsone (even by enema, if necessary), with large, hot quinine enemas every third day, might be tried. Nothing short of radical measures will reach the case.

Solution by Dr. Thompson

As the patient was daily losing ground he went, on November 24, 1929, into the Wellesly Hospital, Toronto, for observation. At that time he weighed 113½ pounds. They gave him a basal metabolic rate test and found it +10 to 13. The diagnosis was *toxic thyroid,* due apparently to the attack of influenza in March, 1928, and an infected lower molar, which was extracted.

Treatment: Hydrobromide of quinine, 3 grains (200 mgm.), twice daily; Lugol's solution of iodine, 5 minims (0.325 cc.), after meals, three times a day; rest as much as possible and eat as much as possible.

He went home on December 2, where he took the hydrobromide of quinine for 10 days, when his eyes became so sore he could not see to read, so he stopped taking the quinine, but took the Lugol's solution for 12 days, when he was ordered to discontinue it, also. The edema had disappeared by the end of December.

He returned to the city, January 3, to report, having gained one-half pound daily for the entire month of December; feeling much stronger; bowels moving once daily (in place of 3 to 4 times). He was directed to take 3 drops (0.2 cc.) of Lugol's solution for one week, miss next week, and back to the Lugol's for one week, during January, 1930, and also 3 Endomin tablets (Reed & Carnrick), 3 times a day.

He now weighs 145 pounds, and is able to do all his work. His blood count is: Hemoglobin, 95 percent; red blood-cells, 4,800,000; leukocytes, 6,000. The pulse varies between 72 and 80.

Closing Comments by Dr. George B. Lake, Chicago

Cases like this put the physician on his mettle and demonstrate that a real diagnosis must be made by a wise and experienced clinician; never by the laboratory alone.

I feel that rapid pulse, with loss of weight and strength, in an otherwise healthy man, should always call for an estimation of the basal metabolism, as one of the earliest laboratory tests. The failure to make such a test, in this case, nearly had disastrous results.

I further believe that, when a patient is steadily losing weight, in spite of a vigorous appetite and a large intake of food (in the absence of signs of diabetes), the basal metabolism test should be among the first thoughts.

This patient no doubt had an unusually sound circulatory system, to account for the lack of more pronounced signs and symptoms referable to the heart and blood vessels.

The history lacked many of the important points which would have led one to the correct diagnosis, but I feel that the two I have mentioned, by themselves, called for the basal metabolism test, the results of which would, at once, have pointed to the basic disorder.

Problem No. 11 (Medical)

Submitted by Dr. Hugh D. Stites, Aledo, Ill.

The patient was a white male; age 77 years; widower; occupation, teamster.

Chief Complaint: Loss of vision in both eyes.

Family History: No family history of cerebral hemorrhage, glaucoma, nor of congenital syphilis.

Past History: He had always been in good health and had had no serious illnesses. Catarrhal deafness, bilateral, has been present for several years.

Present Illness: About three weeks before the onset of the present symptoms, he had a rather severe headache, but this was of short duration and relieved by aspirin (acetylsalicylic acid). At that time the blood pressure and urinalysis were normal.

On Feb. 11 he had sudden severe pain in the right frontal and temporal region, associated with fever and vomiting and not relieved by medication. After free catharsis the pain subsided somewhat and he had no fever.

On Feb. 14, there was a recurrence of the severe pain, which was associated with tenderness in the affected region; but no fever and no change in the pupils. During the night of this date there was total loss of vision of the right eye. On Feb. 15 the pain had not subsided and, during the night of Feb. 15, there was total loss of vision of left eye.

Physical Examination: The patient was a well-developed and well-nourished man. The heart, lungs and abdomen were normal; blood pressure, 150/90; *urine*, negative. The *blood* showed: Hemoglobin, 10.2 Gm. per 100 cc. of blood (about 73 percent); erythrocytes, 3,440,000; leukocytes, 14,900; Wassermann reaction, negative. *Eyes*: Pupils round and equal, giving no reaction to light; marked choked disc in both fundi; examination of the eyeballs with a stethoscope revealed a distinct murmur over the right eye, which was not heard over the left. A later examination of the eye grounds showed moderate pigmentary degeneration of the retina and slight pallor of the optic nerve heads; but the loss of vision was out of all proportion to the local findings. *Neurologic studies* showed no localization of symptoms and no disturbance of the reflexes, either deep or superficial. Spinal puncture was not done for fear that the intracranial pressure would be so great that the foramen would be closed when the fluid was withdrawn.

Roentgenologic examination showed: Sella turcica not enlarged; slight cloudiness of the right maxillary sinus; torsion of the arch of the aorta; marked hypertrophic arthritis, with sacralization of the fifth lumbar vertebra; and calcification of the vessels of the pelvis.

Requirements: Suggest diagnosis and treatment.

Shall We Discuss Ethical and Economic Problems?

For years *The Seminar* has been bringing, to the readers of CLINICAL MEDICINE AND SURGERY, round-table discussions of clinical problems—first surgical problems alone, but more lately, those in both medicine and surgery.

Clinical problems are not, however, the only ones which a physician who has to depend upon his professional labors for his living has to solve. There are economic questions which must be answered, and ethical heart-searchings which keep men awake at night.

Shall we, now and then, present such a problem in the *Seminar* and invite comments and solutions of it from our readers, in the usual manner? We shall be glad to hear your wishes and shall act upon the majority opinion, if someone who advocates such a course will submit a clear and fully worked-out "case" along either of these lines, together with the author's idea of the most satisfactory way to handle it. If we do not hear from several men rather promptly, we will let the whole matter drop; so if you want ethical and business conferences in your *Seminar*, do not delay, but let us hear from you at once.—ED.

THE CLINIC

PROCTOLOGY

Pruritus, Hemorrhoids and Cancer

By J. F. MONTAGUE, M.D., *New York City*

Medical Director Montague Hospital for Intestinal and Rectal Ailments

THE RECTAL specialist frequently sees cases which he must, in justice to his patients, refer immediately to someone else. This is not because his own field is so limited, but rather that numerous ailments to which human beings are subject produce symptoms which the patient refers to the rectum when, in reality, the basic cause is entirely removed from that region.

PRURITUS ANI

Perhaps the most frequently seen ailment of this type is anal pruritus. This serves admirably to illustrate the point I wish to make. Anal pruritus is not a disease entity, which can be summarily diagnosed and precisely treated. No one has ever discovered a germ which can be relied upon to produce it whenever propagated, nor has the keenest eye ever beheld its causal organism under the microscopic lens. In the light of recent bacteriologic researches, the *Streptococcus fecalis* today stands exonerated as a possible causative agent. Other theories likewise stand disproven. Yet the individual who is suffering from acute itching about the anus, spending days of mortification and nights of anguish, is not primarily concerned with these biologic discrepancies. He wishes to be relieved of an intolerable condition, and for that purpose has sought the aid of the rectal specialist.

I have said that anal pruritus is *not* a disease. I must now amplify that statement by adding that my experience, which I feel to be extensive, has led me to the conclusion that usually it is a fairly reliable *symptom of some visceral disturbance*, and takes place because of transference of afferent impulses in the posterior spinal ganglions and spinal cord, from the visceral afferent nerves to the somatic afferent nerves. This brings about a misreference of a sensation of itching, the mechanism being similar to misreference of the sensation of pain. I am convinced that, in slowly incipient or very chronic conditions, *pruritus may actually supplant pain* as a symptomatic expression. This conception is very well exemplified in the case I am about to show you.

The patient is a married woman, who reached the age of forty-two without suffering from any serious illness. The genital and digestive tracts appeared to be functionally normal, nor was there anything in the history in the least abnormal. She had menstruated regularly, enjoyed and digested her food and suffered no impairment of any eliminative function.

Six months before coming under my observation, she began to experience itching sensations about the anus, the region affected extending slightly forward upon the labia. Examination of this area gave no light upon the origin of the sensations complained of; the perineal skin was healthy, and nothing could be discovered in the anal canal or adjoining portions of the rectum.

Proceeding with the general physical

examination, however, bimanual palpation of the pelvic viscera was undertaken, and by this means the presence of a considerable mass in the region of the right fallopian tube was revealed. Referred to a competent gynecologist, two large, uniocular ovarian cysts were discovered at laparotomy. With recovery from this operative procedure, the pruritus was no longer existent, nor has it recurred up to the present time. Not in all cases of pruritus of the perineal region can we solve the clinical problems they present so promptly.

I have many times, in print and by word of mouth, asserted my belief that all cases of anal pruritus can be clinically divided into two classes: One, a *direct pruritus* of the anus, due to the direct irritation of the peripheral nerve endings which find their termination in the perineal zone, by local irritation, trauma, etc.; and the other, an *indirect pruritus*, caused by the misreferred sensations. Cases of the second class may be converted into those of the first class by the action of the victim in scratching and otherwise injuring the cutaneous surface, in his efforts to relieve the intolerable itching. Whatever its original cause, there is no doubt that, at the present moment, he will present a definite local condition which must have prompt relief.

For an example of a case of this kind, let us examine this young man who has been referred to me, after undergoing prolonged but ineffectual treatment at the hands of several physicians. Various medicated salves have been recommended and, with the idea of promoting cleanliness and making their application easier, the perineal skin has been shaved before the salve was put on. I have not been able to obtain a sample of this salve, but apparently it contained some phenol, for the macerated skin gives evidence of exposure to this drug. The shaved hairs are beginning to grow all around the actually traumatized area, and the patient complains that the itching has been greatly intensified by this growth.

In such circumstances, it is essential to take the history with great care. We will first ask this young man if he is troubled with itching on any other part of his body. He replies in the negative. We will then investigate his diet and try to find out if he has any of the affections which we have come to associate, clinically, with protein sensitization. He tells us that he can never eat oysters without intestinal discomfort and the appearance of red spots on his chest and abdomen, these spots often itching intensely for a short time. Has he eaten any oysters lately? By no means! He long ago learned to leave them strictly alone. This apparently disposes of skin sensitization, as a cause of the distressing condition to which he has been reduced.

As the general physical examination has already been made and provided nothing to work upon, we will proceed to examine the anus and rectum. At the junction of mucous membrane and cutaneous surface are normally found certain small pockets or crypts and some tiny projections which, in the healthy rectum, never give any trouble. These are known as the papillae and *crypts of Morgagni* and, though they are by no means microscopic, they are usually so small as to be passed over unnoticed. In this patient, however, it will be evident to anyone using the proctoscope that some of the tiny papules are enlarged and unnaturally red, and some of the crypts inflamed and giving off a serous discharge which may very well be responsible for the itching sensations that have caused this patient to lacerate the perineal skin in his attempts to relieve them by scratching. Further examination of the rectal lumen does not show other lesions, so we may now turn our attention to the immediate relief of the patient's very real suffering.

Under-cutting Operation

To do away with the uncontrollable impulse to scratch, we will have recourse to the *under-cutting operation*. This is a simple surgical procedure, done under local anesthesia, which I have found far superior to the employment of narcotic drugs by mouth or to the application or injection of anesthetic agents of a chemical nature. It consists merely of the severing of the sensory nerves immediately under the skin of the perineal region. To facilitate this procedure I devised, some little time ago, a pair of double-edged dissecting scissors. As you will observe, the blades of these scissors have four cutting edges instead of two, the external edge of each blade having been given a "belly" like that of a bistoury, with a very keen edge. Thus, not only does the instrument cut as it is closed, as do ordinary scissors, but it likewise cuts as it is opened, thus assuring complete severance of the tissues directly under the skin, and much greater rapidity of action than is possible with the ordinary type of instrument. The blades are so small and

thin that only a very short incision need be made to insert them, which greatly lessens the trauma incident to such a procedure.

Having prepared the field of operation in the usual manner, we will now proceed to make eight tiny incisions—four spoke-like ones immediately about the anus, and four others about an inch and a half further out upon the perineal skin, at right angles to the ends of the first-made incisions and roughly following the circumference of a circle having the anus as its center. Inserting the scissors, the nerve endings are rapidly severed and, when the effect of the local anesthetic wears off, the patient will find that he is without the itching sensations which made scratching an irrepressible impulse.

The vicious circle which this little operation breaks, I have described a great many times. Briefly it may be thus summed up: Itching causes scratching and this injures the skin. In the repair process which is promptly instituted, fibrosis of the papillary layer of the corium takes place. Cicatricial tissue invariably contracts and, in the process of such contraction, the sensory nerve endings will be compressed. When this takes place, irritant stimuli will at once be aroused, and these will be recognized in consciousness as further and continued itching. Further damage to the perhaps but-partially-healed perineal area will invariably result from scratching being renewed. Severing the nerve endings breaks this vicious circle and, by the time they have reunited, the intelligent medical attendant will have removed the original cause of the itching.

With this particular patient we now turn our attention to relief of the cryptitis, which appears to be the original cause of the pruritus, and to some simple measures to promote healing of the lacerated perineal skin. For this latter, a mild protective ointment will serve—vaseline, Lassar's paste, boric or zinc oxide ointment, are all useful.

Inflammation of the papillae and crypts of Morgagni may require more heroic measures, though, in the present case, hot irrigations and the establishment of cleanliness will probably serve. Many surgeons use the cautery in such conditions, but I have found it well to avoid its use, except in well-advanced cases. Cauterization is likely to leave scar tissue, which is undesirable in any part of the rectal canal, and especially close to the anal margin. We will begin in this case with the milder measures, and will supplement them by the employment of a suitable vaccine (Lederle's pruritus vaccine has served me well under such circumstances and will probably not fail in the present instance.)

Hemorrhoids

The next patient to whom we will give attention comes with a history of pain on defecation and other manifestations which point to a very common condition; namely, hemorrhoids. But just because this is a common condition, and also because so frequently an examiner jumps to the conclusion that he has a case of hemorrhoids before him and feels that it is unnecessary to make a proper investigation, we shall take especial pains in our dealings with this patient and try to put out of our minds any preconceived notions as to the cause of his symptoms.

This patient has not been "prepared" for this examination, as is so often the custom. I never advise the giving of active catharsis, enemas and so on, as they are far more likely to embarass both examiner and patient than they are to help them. Usually normal evacuation will have already taken place (as is true in the present case), so we have a clear field and no abnormal irritation of the rectal mucosa to confuse or mislead those inspecting the rectal lumen.

For doing a rectosigmoidoscopy, the knee-chest or knee-shoulder position is the most satisfactory but, as I purpose now to examine only the lower rectum, the knee-elbow position will suffice.

A number of rectal specula are on the market which will serve for such a search as we are about to make. I have found, however, that the speculum I devised myself satisfies me better than any other, and for this reason I am accustomed to recommend it. This speculum makes possible both a direct and a lateral view, without the necessity of withdrawing and reinserting the instrument. When it is to be used as a proctoscope or anoscope, all one has to do is to insert it and remove the obturator. If a lateral view is desired, a slight pressure on the handles will open the wall of the instrument as widely as one wishes. If it proves essential to dilate the rectal canal, this can be done by merely approximating the handles. Properly lubricated and intelligently used, no anesthesia will be needed when this instrument is empoyed.

Hemorrhoids are of two kinds; external and internal. The fundamental difference between these two types is that the external variety is covered with skin, while the internal tumors are beneath the mucous membrane. So, if an internal hemorrhoid prolapses through the anus, since it is still covered with mucosa it remains internal, no matter how far out it has actually progressed. In like manner, even if an external hemorrhoid has been "reduced" into the rectum, as has actually been done by more than one zealous practitioner, it nevertheless remains external in type so long as it retains its cutaneous covering. Keeping these facts in mind, it will be appreciated that the differentiation between the two types is not difficult, but it is nevertheless important, as treatment is by no means identical in the two cases.

Conditions most frequently confused with hemorrhoids are *fissure, marginal abscess, polyp* and *rectal prolapse*. To the experienced examiner, there will be little difficulty, but, for those whose knowledge along these lines is meagre, a few hints in regard to history and outward manifestations may not be amiss.

The pain caused by hemorrhoids is dull and is referred regularly to the perineal region. That caused by a fissure is sharp, "sticking" and is greatly increased during the act of defecation. A marginal abscess will throb and is likely to be accompanied by local rise of temperature. Hemorrhoids bleed freely as a rule, so that excessive bleeding is more prone to be due to this cause than to any other. Fissures do not bleed very much. Prolapse of the rectum is not so painful a protrusion as is that of hemorrhoids, although it is actually a far graver condition. The patient's description, however, is not to be relied upon, either in regard to hemorrhage or prolapse. Only thorough examination and correlation of the findings with the history as taken, will put the examiner in possession of all the facts.

Injection Treatment

In the patient under examination, we have an uncomplicated internal hemorrhoid, and this, I believe, can be most easily and safely treated by the *injection method*. This will cause him but little discomfort and —what is more important to a married man with a numerous family dependent upon him—will not keep him from following his regular employment.

The mucosa is cleansed by carrying several large cotton swabs through the proctoscope (I do not use iodine, though many who employ this treatment think it necessary to do so). The hemorrhoid is brought directly into view if the speculum is inserted with the patient in the knee-chest position, after which he is asked to rise to the knee-elbow position.

I make use of a standardized solution, put up in a carpule ready for use. This is placed in a special syringe designed for this injection treatment of hemorrhoids, so that the procedure is carried out with the utmost neatness and dispatch. There are several solutions adaptable for this use, the chief matter to consider being that they be not too strong.

If several hemorrhoids must be injected, it is best to do the lower one first. In the present patient we have but one, so this is very quickly treated.

The needle is plunged into the center of the "pile" and the solution is then slowly injected (I am now using a quinine-urea-hydrochloride solution). After a sufficient amount has been injected, I withdraw the needle, regulating this by the appearance of the hemorrhoid. It now shows a very slight blanching about the point of injection. This is the signal that enough fluid has been injected. I will seal the needle puncture with a single drop of the solution as the needle comes out.

The injection completed, I take the precaution to protect the anal and rectal mucosa from any possible leakage of solution by the injection of an anesthetic ointment—*Butesin Picrate*, in this instance. I will also put in an ounce of paraffin oil, which will be an additional protection to the mucosa and will help to make the next bowel movement pass out easily and without pain.

Had this patient presented a complicated case—either numerous external hemorrhoids or the internal type, badly thrombosed or even ruptured—the use of injection would have been *contraindicated*. In most of the advanced and complicated cases, clean incision is the wisest course, either by ligature with excision, or by the clamp and cautery method. This procedure should never be lightly regarded but, in skillful, competent hands, it is the logical method of handling all but the simplest hemorrhoid cases.

The after-care is very important; in fact, it ranks equally with the original

surgical work, and I should personally think no surgeon should be too busy or too proud to give it his earnest personal attention.

Carcinoma

The last patient who is to have our attention today has also been referred with a diagnosis of hemorrhoids. There are, however, several circumstances in connection with the case which emphasize the need of care and a most thorough examination.

The man is fifty-eight years old and has never been troubled by hemorrhoidal manifestations during a life of sedentary work. He has noticed some blood in the stool during the past three months, but he has experienced no pain on defecation until very recently. His personal history shows that he has lost weight, and he is now twenty pounds below his normal average. The general physical examination does not tell us anything, but on inserting the proctoscope we quickly see, a short distance above the anal canal, a strictured area, very nearly encircling the lumen of the bowel. It is noticeable that even the slight trauma of the instrumental inspection is causing it to bleed. It is therefore evident that we are here dealing with something of graver import than a hemorrhoid, and a specimen of tissue must be secured for *microscopic examination.*

If, as is strongly suspected, we are dealing here with a case of malignant disease, several courses will be open to us. In the present instance, we are dealing with a patient of sedentary habits, whose general condition is only fair. The history specifically states that the existence of the lesion has been known for three months. Its appearance suggest a considerably longer period. If a malignant lesion of the rectum does not come under treatment until it is well advanced, the prospect of relief from operation is very small indeed.

It is becoming steadily more evident that we seldom *cure* these rectal cancers. That we can delay their advance and help the patient to live many years in comparative comfort, by suitable palliative measures, I am every day proving in my own practice. I now make use of the cautery to remove the redundant mass, and implant metal seeds of *radium* to reduce the activity of the maligant cells, or perhaps to destroy them entirely. This method has given me such good results that I unhesitatingly recommend it. A paper describing in detail the method I use will shortly be forthcoming.

Summary

In concluding our clinic, let us briefly summarize some of the lessons we may learn from the cases presented:

First: In all obscure cases of pruritus ani, a general physical examination is as important as a rectal examination.

Second: The injection method is an efficient means of treating simple, *internal* hemorrhoids.

Third: Routine complete examination of the anus and rectum, in cases suspected of having hemorrhoids, will not infrequently disclose the existence of an unsuspected rectal carcinoma. If found early, the patient is afforded a great advantage in combating the growth.

30 East 40th Street.

Art and Science

Art invents; science discovers. Art goes upon its own feet and hunts more by scent than by sight; science goes upon wheels, but must have a road or a rail. Art often dies with its possessor; science is transmissible. Art is completely personal; science is entirely impersonal. Art is interested in the "how"; science in the "why." Art runs for the stomach pump; science studies the phenomena of the poisoning. Wisdom is the vital union of art and science—the will knowing what to do and how to do it.—From Several Sources, quoted by James D. Heard *in* J.A.M.A., *May* 31, 1930.

CLINICAL NOTES AND PRACTICAL SUGGESTIONS

A Cook County Hospital Intern in the Late '80's

THE late Eighties were full of interest for the internes of our period, because there were several fundamental changes taking place in the life of Medicine at large.

One of these changes lay in the introduction of bacteriology. Histology and morbid anatomy were already there. Virchow's era was still dominant, but represented in a somewhat crude form. For years we struggled on with a four-hundred-dollar appropriation for laboratory equipment and supplies, allowed by the hospital authorities at the solicitation of our fellow interne, Dr. John McDill. Our laboratory occupied a store-room under the old amphitheater.

Bacteriology, stimulated by the epoch-making studies, technical innovations and scientific discoveries of Robert Koch, of Berlin, set medical youth aflame everywhere and made necessary a knowledge of the German language and visits to German-speaking countries. It was at this time, therefore, that the old English tradition of a pharmacal-therapy ideal in medicine was definitely replaced, in America and especially in Chicago, by teutonic and continental ideals of pathology and diagnosis.

Surgery, perforce, became effective within its widened limits under the new conditions, and enlisted the efforts of many enthusiastic youths. Dr. Christian Fenger was the leading spirit of progress. His story has often been told—how, after simple beginnings in Denmark, he came to Chicago and brought to us the very essence of European continental medical culture.

From these beginnings grew the new age of medicine for Chicago. We had practically no teacher except Fenger. But out of the ranks of the County Hospital interns sprang the new body of teachers who have given preeminence to the Medicine of our city. We rejoice to name among these leaders Senn, Billings, Belfield, Murphy, Edwards, Preble, Hektoen, Le Count, Sippy and Gehrman. Bayard Holmes, never sufficiently honored, initiated the great laboratory movement which now dominates medicine in Chicago. He built the first pathologic laboratory of the College of Physicians and Surgeons.

It is not sufficiently recognized that it was just at this time that several fundamental changes in Medicine were taking place, which can now be seen, in some respects, better than they could be observed at the time of their occurrence.

The first of these changes was that our medical ideals and leadership ceased, at this very period, to be related to England and to English-speaking sources, with France a little included, as they had been since our national beginnings. They became potently and very advantageously teutonic, centering about Berlin and Vienna.

The second great change involved the new parasitic theories of the infections. It is quite true that most of the advocates of the old theories had literally to die in order to leave the field free for the new and dominant thought. With the exception of

*Read before the Cook Co. Hospital Alumni Association, June 1930.

Fenger, Senn and one or two very young men, there were literally no teachers of the new regime in Chicago.

Life then, for the young physicians of the new school, became like the pioneer's life at the time of discovery of gold and diamond fields in a new land. Then unknown Ogston could find a staphylococcus in Scotland, as the boyish Robert Koch had discovered the tubercle bacillus and later the cholera bacillus in Germany. You know the story. *We lived through it*—a thrilling experience.

And the clinicians "mopped up" after the great pathologic and anatomic victories. The greyheads clung to denial of bacterial significance in disease as, when a boy, I heard them doing in Central Music Hall, at the meetings of the American Medical Association. Even then, after the pathogenic powers of the pus microbes were known, many great surgeons still adhered to primitive Listerian antiseptic methods. Some doughty followers of Lister still used his carbolic acid spray, which I never saw in Chicago, where it had just been abandoned, although I saw it once in London, in 1894.

It was again epoch-making when, a little later, asepsis came, as Fenger told us, to become the new doctrine to succeed antisepsis. Later came the rubber gloves of Halstead, of Baltimore, which made possible real, heartening success in surgery. Halstead's innovation was not recognized or appraised then as it should have been. We had just left the Cook County Hospital when full-fledged modern Medicine and Surgery could be recognized about us. As a young lecturer, in those early days, I was almost driven from the speaker's rostrum by the students when I told them Behring's story of the experimental success of diphtheria antitoxin, predicting that, in six months time, the drug stores would sell it to all comers!

In the midst of this furore of the revolutionary growth of Medicine, almost unrecognized even by the profession, but thrillingly exciting to us, the cognoscenti, various social tragedies marked our way as we lived the common human round.

There was the Haymarket riot, in which a large body of European anarchists defeated their own purposes by violence. I admitted to the hospital, and later helped to "post", Matthias Diegan, the policeman whose slaying by those anarchists made the legal case of those who prosecuted the slayers. Fenger surgically visited the anarchist Ling, who blew his head off in jail with a bomb.

In those days were ferreted out the thievings of the great "boodler ring," with McGarigle, warden of our hospital, near its head.

Those were also real days of glory for the Illinois Training School for Nurses, which gave uplift of honor to the sick nurses' activities. And soon followed those days in which Billings, Quine, Steele and a host of our other worthies drilled the wealthy part of Chicago's public in giving funds to the great cause of scientific Medicine in Chicago.

The old days of crude pioneering are gone. Many medical men of today, instead of doing experiments on dogs in remote corners, as we did, are privileged to work in luxuriously equipped laboratories, with all manner of collaborators and assistants. Yet the freshness, the vividness of interest, the largeness of opportunity and the freedom of outlook of those earlier days cannot be forgotten, nor can we fail in satisfaction when comparison is made with more recent privileges.

The glory of our profession lies in its stooping to delve in the normal and the morbid processes of the human body to find the jewel Truth, in order to relieve suffering and to promote human physical well-being. The proud roster of the intern body of the County Hospital bears the names of many who have made imperishable records, participating in the great labor of furthering medical ideals and doing their full share of the work of their day.

WELLER VAN HOOK, M.D.
Chicago, Ill.

Education on Cancer

CANCER is the great unsolved problem of the medical world today. It takes its toll in thousands each year, and is apparently increasing in occurrence, so that it now stands second or third as a cause of death among all ages, while as a cause of death in adult life it is of almost paramount importance. Last year, in New York City alone, nearly 8,000 deaths were reported as due to cancer, and in the whole United States the number was over 110,000. What this means in suffering to the patients and their families it is impossible to evaluate.

The picture would indeed be an alarming one could there not be to set against it another picture. In the first place, throughout the country, men and women, working with energy and devotion and, in many cases under great handicaps as to equipment, are carrying on cancer research. Some day, it may be hoped, the secret will be uncovered, and more adequate means of treatment and control will then be available.

In the meantime, the greatest hope lies in the attempt, through public education, to break down the barriers of fear and ignorance, the chief causes of the delay in seeking diagnosis and treatment, which only too often results in premature death.

The task of overcoming these barriers is the particular function of the American Society for the Control of Cancer, which, to this end, employs every possible means to put before the public the known facts about the disease—how it starts, how it spreads, what the chief symptoms are, how it is diagnosed and how it is best treated.

Cancer is curable in many cases. But it must always be remembered that the most skillful surgeon can accomplish but little unless the patient reaches him in an operable stage. Each year hundreds who can not afford to pay are guided to general hospitals and special cancer institutions for diagnosis and treatment.

AM. SOC. FOR CONTROL OF CANCER.
New York City.

Notes from the American Chemical Society

THE eightieth meeting of the American Chemical Society was held at Cincinnati, Ohio, Sept. 8 to 12, 1930, and a number of matters of interest to physicians were discussed in the Division of Medical Chemistry and a symposium on the endocrines, in the Biologic Division.

The big public meeting took place on Wednesday evening, Sept. 10, at which the president, Dr. William McPherson, delivered his address, "Chemistry and Education," in the course of which he cited the slowness of the processes of nature and said that one of the chief things the matter with this country is that we are trying to go too fast. As examples of this condition he called attention to the prohibition laws and the action of the Farm Board in buying and storing large quantities of wheat, as being fundamentally opposed to natural law (short-cuts to some kind of Utopia) and, therefore, doomed to failure from the start.

He deplored the development of "popular chemistry," as opposed to real scientific studies, and declared, "The mere storing of one's mind with facts, however interesting they may be, is not education; neither is it science. A *merely* well-informed man is the most useless bore on God's earth."

Drs. Shiro Tashiro and L. H. Schmidt, of the Medical College, University of Cincinnati, reported some important studies, indicating that an excess of thyroxin in the body will oxidize certain lipoid substances and permit the development of toxic symptoms, due to the presence of an excess of bile salts in the blood. One of the commonest results of this condition is the development of gastric or duodenal ulcer.*

Dr. Oliver Kamm, discoverer of the two posterior pituitary hormones, announced that Dr. C. G. MacArthur, of Buffalo, has probably discovered a third hormone, one of whose functions is the control of pigmentation. At the same meeting, Dr. Frank A. Hartman, also of the University of Buffalo, stated that the vital hormone of the adrenal cortex has been isolated, and is known as *Cortin*. It has been used experimentally and is found to relieve some of the symptoms of adrenal deficiency.

In the endocrine symposium, Dr. E. Ellice McDonald, director of cancer research in the Graduate Medical School, University of Pennsylvania, declared that unprejudiced tests have shown that the adrenal cortex treatment, recommended by Coffey and Humber and widely heralded, has no curative value. He further stated that the only presently known means for curing cancer are surgery, radium and the x-rays, and urged the establishment of centers for cancer treatment throughout the country, manned by competent physicians and adequately supplied with radium, as is being done in other countries. The United States would need 100 grams of radium, costing $5,000,000, which, if properly applied, would save 30,000 lives each year.

Dr. S. A. Thayer and Edward A. Doisy, of St. Louis, reported the production of a crystalline female sex hormone, of such

*This is in accord with the theory advanced by Crile, at the Interstate Postgraduate Medical Assembly last year, as reported in CLIN. MED. AND SURG., Jan., 1930, p. 44.—ED.

complex structure that it has not yet been completely analyzed. This substance has been given the name, **Theelin**.

Many other matters of great general interest were brought before the sessions of this old, yet highly modern society, but space does not permit their further elaboration.

HERMANN HILLE, Ph. D.

Chicago.

Fool Ideas on Obesity

THAT people in general have very vague and erroneous ideas regarding obesity and its treatment is suggested by the following extracts from Dr. W. A. Evans' health column in the *Chicago Tribune*.

"M. G. writes: What can I take internally or do to reduce about 30 or 40 pounds? I am not a sympathizer of dieting. I only mean a medicine or certain baths."

To which Dr. Evans pointedly replied:

"You cannot reduce your weight 30 or 40 pounds by taking medicine or baths. It is diet or nothing, in spite of your lack of sympathy. You are right: fat people are not in sympathy with restrictive diets. If they were, they would not be fat."

This does not, according to the most modern ideas, cover the whole ground. Endocrine deficiencies are a factor in many, if not all cases of obesity, and dieting alone will not relieve the condition in all cases; but a reduction in food intake is an essential part of the treatment of all cases of this sort.

Physicians should utilize every opportunity to instruct the public regarding this very common condition, so as to protect the people from quacks and nostrum vendors.

G. B. L.

Chicago.

The White House Conference

A LITTLE MORE than a year ago, President Hoover called the first meeting of the White House Conference on Child Health and Protection. Now the reports of the four sections of the Conference and their various committees and sub-committees are being gathered into a vast compendium of information, to be presented to the Conference, as findings, when it convenes in Washington on November 19th.

The work, as originally planned, has been carried on by four sections which have studied medical service and its relation to children; public health service and administration; education and training; and the handicapped child. But as the work has logically led the investigators into new and unexpected fields, the original group of seven hundred experts has grown to eleven hundred trained workers, whose enthusiasm and devotion have been a real source of inspiration to their leaders.

In carrying out the original purpose of the Conference, "to make a survey of our children, to study the forces influencing them, and to try to chart out the wisest courses possible in our future management of youths," the Conference has not confined itself entirely to the integration of existing information, but is carrying out, through the agency of various committees, several interesting pieces of original investigation. Among these is the family interview survey, conducted by the Committee on Medical Care for Children, with the cooperation of the Department of Agriculture.

Altogether, it is anticipated that about 50,000 records, dealing with the use of medical service for preschool children, will be secured from cities, and the same number from rural areas. During recent years the problems of the preschool child have received more and more attention, for we realize that during these years the foundation is laid upon which our school must build future citizens. Many of our children now reach school with physical handicaps which might have been prevented or corrected by proper medical service, why have they not been prevented or corrected? Does the fault lie with parents, with the inadequacy of available medical service, or the costliness of medical service? These are some of the questions which it is hoped may find their answer in the data collected and studied by this committee.

Many of the questions under consideration by the Conference are age-old, others are distinctly the by-product of our modern civilization, and some of the problems concern special groups. Physically and mentally handicapped children we have always had with us, and they must always have special care, but instead of deploring their fate and letting it go at that, we are beginning to make an effort to fit them into a scheme of life where their inadequacies will be minimized. And so it is good for representatives, from widely separated communities which have carried out construc-

tive programs, to get together and talk over their problems and plans, and set newer and higher standards of care.

The problems of the urban child are receiving special attention, for we realize that the increasing congestion of our cities is exacting greater and greater penalties, physical, mental and moral. How can we restore to the child the sunshine, the fresh air, the play space and the interesting tasks of which we have deprived him? How much, as a nation, as cities or as parents can we afford to pay, to give him these things?

Viewed as an isolated fact, the cost of a constructive program in medical service, education or recreation seems staggering when we add up the bill, state by state, and organization by organization; but, in comparison with a national bill for sickness or delinquency or crime, it dwindles. If the White House Conference on Child Health and Protection does no more than teach us to compare these values it will have made a great contribution to our national welfare.

RAY LYMAN WILBUR, M. D.
Washington, D. C.

Note on Injecting Hydrochloric Acid

ONE OF THE difficulties in giving intravenous injections of diluted hydrochloric acid, according to the suggestion of Burr Ferguson (at least with some who may be unusually sensitive to the drug), is that it produces a discolored spot, if a little of the acid escapes into the tissues. Also it has produced inflammation and thickening of the vein into which it was injected.

These untoward effects can be avoided by diluting the acid solution, if this is done in the right way. Although the dose is but 10 cc., use a 20 cc. syringe and, after drawing up the acid solution, fill the syringe with sterile, double-distilled water, such as is supplied in ampules for intravenous work (tap water may contain mineral salts which will neutralize the acid), so that the needle is full of distilled water instead of acid sloution. Then inject slowly.

Since using this modified technic there have been no disagreeable effects.

It is still too early to be sure what the ultimate results of this method of treatment will be, but, so far, mine have been highly satisfactory. These injections give prompt relief from the feeling of toxemia, if nothing more.

J. C. RICHEY, M.D.
Port Stanley, Wash.

Surgeon Held on Charge of Mayhem*

BERLIN, May 26.—Dr. Ernest Nitzsche, a surgeon of Nuremberg, was sentenced to pay one thousand marks or spend twenty days in jail, because, during an operation performed on a girl patient, he removed the latter's appendix without the patient's knowledge or consent.

Dr. Nitzsche claimed that the removal of the appendix was the rule with operations of the kind performed on the girl. A medical expert testified that the removal would not have been necessary and, since the patient testified that the operation had not done her any good and that she would never have consented to the removal of the appendix, the court ruled that the surgeon was guilty of mayhem.

Surgical circles are very much aroused over the verdict, predicting the possibility that, in future, many operations will have to be broken off to get the consent of the patient for surgical measures which proved necessary in the course of the main operation.

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[This report calls attention again to the fact that it is a wise idea, before performing a surgical operation, to obtain a signed release from the patient or nearest relative, permitting the surgeon to do anything that appears to be necessary after the belly is opened. Very frequently conditions are brought to light which could not be diagnosed preoperatively, and the surgeon ought not to be hampered by the fear that he may be penalized for using his professional judgment and skill in any way which he believes will be to the best interests of the patient.—Ed.]

*Joliet Evening Herald-News, Monday May 26, 1930.

THE LEISURE HOUR

Harley Street—The Mecca of Medicine

An extremely interesting article on Harley Street, by Dr. Robt. J. Blackham, appears in *Med. Econ.*, May, 1930.

Harley Street, the London "Mecca of Medicine," although built in the early part of the 18th century did not become a famous center of medical practice until much later. Many of the nobility had their town houses there at first; later celebrities, like the great Duke of Wellington, Lady Nelson, artists, etc., resided there. Even as late as 1878, the famous politician, Gladstone, lived in this street.

There are only 154 houses in Harley St. It is, generally, the only place in London where medical practice approximates American ideas. The houses are divided up into suites and individual rooms for consultation practice. Doctors do not live there.

It is impossible for a new man to get a start in Harley St. He must have passed through the mill of hospital or teaching. To be a "Harley Street man" means that your reputation has been earned in the eyes of the profession, because the landlords of the Harley Street professional houses are all doctors who rent out the accommodation they do not personally use.

Nearly every Harley Street doctor devotes a large part of his time to charitable practice in the hospitals.

The growing needs of London have necessitated an overflow of consultants into streets adjoining Harley St., but to be outside Harley Street is, in the public mind, to be outside the high aristocracy of the profession. Harley Street houses the elite of the London medical profession.

Patron: "Here's a piece of rubber in my hash!"

Waiter: "No doubt. The motor is displacing the horse everywhere."

Encouragement

The raw wind sweeps across the tee and fairway;
The dead leaves frisk and skip along the lawn;
The sunlit hours are growing daily shorter.
Summer is almost gone.

The scores we've made, the trophies we have taken,
Assume their place as triumphs of "last year."
We sadly put the golf clubs in the attic.
Winter is almost here.

But still the old sun rises every morning
And season follows season, in its train.
Keep up your putting practice on the hearthrug,
For spring will come again.

—GEORGE BURT LAKE.

And yet you never see a statue of a man who attended to his own business. *Fountain Inn Tribune.*

Precautions

Dentist: That's all right, sir; I don't expect payment in advance.

Angus: Dinna fret, mon. I was just countin' ma siller afore I took the gas.—*South. Med. and Surg.*

Cooperation

You have a dollar. I have a dollar. We swap. Now you have my dollar—I have your dollar. We are no better off.

You have an idea, I have an idea. We swap. Now you have two ideas and I have two ideas—both are richer.

What you gave you have; what I got you did not lose.

This is cooperation.—*Points.*

Thumbnail Therapeutics

Pernicious Anemia Treated with Swine Stomach

Raw swine stomach apparently contains a substance which produces, in patients with pernicious anemia, a rise in the number of erythrocytes and in the proportion of reticulated erythrocytes, similar to that produced by liver and liver extract. Such results were verified in a small series of cases.

Whole stomach was given, finely ground up and freed from fiber. A half-pound daily of the liquid and the solid thus prepared was given in tomato juice, orange or other fruit juice with or between meals, and was usually well taken and tolerated. The average increase of erythrocytes per week while the patients were in the hospital was 255,700. The average number of days of the patient was in the hospital was 27.—Dr. H. M. Conner, Rochester, Minn. (Mayo Clinic) in *J.A.M.A.*, Feb. 8, 1930.

Nervous Children

With nervous children, a seeming neglect is the best treatment of all trivial disorders. Too much solicitude defeats its purpose.—Dr. H. C. Cameron, London, in "The Nervous Child."

Strabismus

Infantile squinters and most young children with unilateral deviation can be saved from ultimate loss of vision by early treatment. It is important that this be instituted upon the earliest manifestations of strabismus.—Dr. H. C. Neblett, in *South. Med. and Surg.*, Oct., 1929.

Prevention of Seasickness

On the assumption that in seasickness the pylorus is contracted and reverse peristalsis started, Dr. I. D. Mishoff, of Milwaukee, considers that concussing (vibratory massage) of the interspace between the fourth and fifth dorsal vertebrae, opens the pylorus and at the same time soothes the nerves of the brain which control the palate and the stomach and thus relieves from the tendency to seasickness. Thirty strokes of the concusser are given in 1 minute. The effects are better when the seventh cervical vertebra is concussed first. The method has been found practically effective in a number of cases, as reported in *Physic. Therap.*, Jan. 1930.

Calcium Metabolism in Diseases of the Skin

Certain dermatoses are dependent on increased irritability of the nerve cells, caused by the lack of calcium in the tissues. The results of treatment show that administration of calcium and thyroid preparations, in dermatoses of nervous origin, is of special value. Cases of urticaria, prurigo, eczema and those cases of cyanosis of the extremities and chilblains with low calcium content of the serum were considerably improved with calcium and thyroid therapy.— N. Burges, *Brit. J. Dermat. and Syph.*, 40: 279, 1928.

Dextrose by Rectum

Experiments have shown that glucose (dextrose) is absorbed from the rectum slowly and only to a slight extent. For that reason it appears that enemas of dextrose are not a satisfactory method of supplying the body with promptly utilizable carbohydrates.*—Dr. Pressman, *in A. J. Med. Sc.*, Apr., 1930.

Vomiting of Pregnancy

Insulin is now indispensable in the treatment of vomiting of pregnancy. It should

* The intravenous administration of dextrose is the most prompt and positive method for supplying badly-needed carbohydrates to the body. Ampules of proper solutions are now available commercially. —Ed.

be given *after* a carbohydrate (dextrose) has been administered by mouth, rectally or parenterally. Severe emaciation is combated by the increased appetite following injections of 5 units of insulin, at proper intervals.— DR. RUNGE, in *Zentr. Gynäkol.*, 52: 2547, 1928.

Sodium Hydrosulphite: An Antidote to Arsenic

Experiments on dogs showed that sodium hydrosulphite effectively prevented poisoning after administration of 1 cc. of Fowler's solution per kilogram of body weight. The dosage of hydrosulphite was 100 mgm. per kilogram of weight, in the form of a 10-percent solution, rinsed down with 25 cc. of normal hydrochloric acid.—DRS. W. R. BOND and E. W. GRAY, in *J.A.M.A.*, June 8, 1929.

Prescribing Hypnotics

A strongly-flavored substance (like syrup of orange) should always be prescribed with a hypnotic, as it prevents the patient from knowing exactly what drug he is taking and from knowing, by the taste, when the dose is reduced.—DR. R. D. GILLESPIE, in "Sleep."

Opium in Pneumonia

In the early stages of pneumonia, opium conserves strength and diminishes the chance of delirium. After the fifth day, it is not safe, on account of the increasing respiratory embarrassment.—DR R. D. GILLESPIE, in "Sleep."

Chlorazene in Acute Empyema

In his book just issued (1930) on "Surgery of the Lung and Pleura" Dr. H. Morriston Davies, referring to the suction drainage treatment of acute empyema, cites Herrmannsdorfer's use of pepsin solution, which is run into the pleural space. Dr. Davies states that Chlorazene (chloramine) can be used for this purpose, 30 to 50 cc. being injected and left in for 12 to 18 hours; Chlorazene is more stable than the pepsin solution and the author uses it in preference. A 0.5-percent or 1.0-percent solution should be used.

Inorganic Salts in the Diet

The inorganic salts of calcium and iron work just as well, when needed, as do expensive food-iron preparations; and a few grains of potassium iodide, taken several times a year, will give the body all the iodine it needs.— DR. MCKIM MARIOTT, of St. Louis.

Stramonium in Parkinsonian States

Various clinicians have reported good results from the use of *datura stramonium* in Parkinsonian states, especially in the relief of rigidity and tremor. The powdered leaves are usually employed, in 20-centigram tablets, increasing the dose so that, after 15 days, 10 tablets daily are consumed, continuing the treatment for 20 days with a 10-day rest interval. Others prefer to give 0.1 Gm. three times daily. increasing the dose until toxic symptoms appear.—DR. L. J. BRAGMAN, Syracuse, N. Y., in *M. J. & Record*, Jan. 1, 1930.

Elective Version

Is it justifiable, as good obstetric practice, to displace an already engaged head which is making normal progress through the pelvis in order to relieve the woman of one or two hours of pain in the second stage, when the cost is increased fetal and infant death rate? Even in the hands of the expert this is not sound teaching.—DR. J. O. POLAK, of Brooklyn, in *Canad. M. A. Jour.*, Dec., 1929.

Sodium Ricinoleate in Allergic Intestinal Disease

Based upon the theory that sodium ricinoleate is capable of neutralizing bacterial poisons, patients with symptoms suggesting an intoxication ("intestinal autointoxication") have been treated with this drug. The clinical results, which have been very good, support the theory.

Capsules of sodium ricinoleate have been employed, generally three 5-grain capsules have been given daily, though in some cases as many as six 5-grain capsules have been taken daily. The drug appears to be entirely nontoxic in these dosages.— DRS. R. S. MORRIS and S. E. DORST, of Cincinnati, in *Am. J. Med. Sc*, Nov. 1929.

Current Medical Literature

Economics of Intravenous Medication

As it is the custom for physicians to charge more for an intravenous injection than for an intramuscular one, the patient is likely to prefer the latter. It is evident, however, that six to eight intravenous injections at five dollars, for example, is somewhat less expensive than thirty or more intramuscular injections at a dollar and a half, the usual price charged. This economic aspect is very important to the patient. It is manifested in society by the increased efficiency of the laborer or housewife in a comparatively short time. We are now able to assure a patient who cannot afford to be ill that in five or six weeks his blood condition, and consequently his general health, will be as nearly normal as it would be in twice that length of time by the older method. At the same time the cost is less and the possibility of unpleasant accompanying symptoms is reduced to practically nil. The saving in time to the busy physician is, moreover, no mean consideration.—Dr. MELCHOIR F. R. SAVARESE, in *Am. Physician*, Mar., 1922.

Use of Dextrose in Surgery

The preoperative and postoperative administration of dextrose is now regarded as of great importance in the general care of the surgical patient.

In *Am. J. Surg.*, June, 1930, Dr. Paul Titus, of Pittsburgh, gives the following outline for the employment of dextrose:

Group I. Routine postoperative injection as a restorative, and as a preventive or active *treatment of vomiting acidosis*:

1.—As routine postoperative measure, 300 cc. of 25-percent dextrose solution, injected intravenously at 3 cc. per minute. Repeat once or twice as necessary, at four to six hour intervals.

2.—This is also preventive treatment of postoperative vomiting.

3.—If treatment is instituted promptly, the same procedure outlined for routine injection should be vigorously pushed for postoperative nausea and vomiting. If vomiting has been excessive before treatment is begun, add to solution 1 to 2 percent of sodium chloride, to compensate for loss of chlorides in emesis.

4.—Proctoclysis of 10-percent dextrose or of tap water, by Harris tidal-stand method, is preferable to the Murphy drip.

Group II. Preventive or active treatment of shock:

1.—After prolonged operation, give 400 cc. of 20-percent solution of dextrose intravenously, at 4 cc. per minute, with intrarectal injection of one pint of hot dextrose (10 percent) with sodium chloride (2 percent). Repeat intravenous injection once or twice, at from four to six hour intervals, if necessary.

2.—Active treatment of postoperative shock; 750 cc. of 10-percent dextrose solution intravenously, at 7.5 cc. per minute; or if more haste is necessary, 750 to 1000 cc. of 5-percent dextrose solution with 1 percent sodium chloride at 15 cc. per minute; or 500 cc. gum acacia and dextrose solution at about the same rate.

Group III. Suspected or actual peritonitis, intestinal atony or beginning ileus, and toxemia following intestinal obstruction.

1.—With suspected or local peritonitis, give 300 cc. of 25-percent dextrose solution intravenously, at 3 cc. per minute, repeated every four to six hours for day or two. With general peritonitis of mild degree this same procedure will be sufficient, and this is also true of intestinal atony or beginning ileus.

2.—If these conditions have existed for some time or are of serious degree, give 5-percent dextrose solution through a tied-in cannula, at about 5 cc. per minute. Continue this over a period of several days without interruption.

3.—Following operations for intestinal obstruction, venoclysis of 5- percent dextrose solution, with or without 1 to 3 percent sodium chloride, is not merely recommended, but urged as a routine procedure. This should be continued as long as five or six days, if necessary.

Infiltration Anesthesia in the Reduction of Fractures

The use of local anesthesia in the reduction of fractures dates back to 1885.

In *Anesthesia & Analgesia*, Mar.-Apr., 1930, Dr. C. O. Rice, of Minneapolis, gives the following procedure:

The skin over the fracture is cleansed, sterilized and draped with sterile towels. A 1 percent procaine-epinephrin solution is used. The initial subcutaneous wheal is made with a small hypodermic needle, about 1 cm. proximal to the fracture gap. Then, ordinarily using a 1½-inch, 22 gage, needle for a fracture of the extremities, 5 to 10 cc. of the solution is injected. The periosteum of the proximal fragment, around its entire circumference, may be infiltrated if deemed necessary. Care must be taken to avoid injury to the nerves or blood vessels in the vicinity of the puncture and the point of puncture must be selected with this in view for different regional fractures.

The author recommends this types of anesthesia whenever manipulative procedures are necessary in the reduction of fractures. He has

used it in more than 200 personal cases, and it is employed routinely for ambulatory fractures and dislocations in the Minneapolis General Hospital. It is safe, simple and satisfactory and does not interfere with healing.

Combined General and Local Anesthesia

In the bad surgical risk, the gas anesthetics can be well supplemented by infiltration with local anesthesia of the field of operation. The shock is thus further reduced, the ease of operation increased, the relaxation of the abdominal wall is greater, operation can be begun earlier and, if shock or collapse occurs, the general anesthetic can be suspended and closure done under the local.

In thyroid surgery, where the psychic shock is an element, ethylene analgesia, supplemented by local infiltration after the patient is unconscious, is as near an ideal procedure as one could wish in this hitherto-dangerous class of risks.

In the poor gynecologic risk, for example a bleeding fibroid tumor of the uterus, where the patient comes in almost exsanguinated, often with unfavorable blood-chemistry, we are able, with the aid of a blood transfusion, to convert an almost impossible risk into a fairly favorable one by infiltration of the abdominal wall with procaine solution and incision and opening the abdominal cavity under the local anesthesia; then packing off and separation of adhesions under ethylene; then a few minutes of added ether for the removal of the tumor; peritoneal toilet under ethylene; and closure with the aid of the local infiltration, while the patient is awake. —Dr. C. H. Richardson, of Macon, Ga. in *Anesth. & Analg.*, May-June, 1930.

Sodium Amytal as an Intravenous Anesthetic

From an experience of the use of sodium iso-amyl-ethyl-barbiturate (sodium amytal) in 195 cases—of which 21 were non-surgical and 9 obstetric—Drs. J. T. Mason and J. W. Baker, of Seattle, reach the following conclusions, as given in *Surg. Gynec. and Obstet.*, May, 1930:

Our present impressions concerning sodium iso-amyl-ethyl-barbiturate in surgical cases are as follows: We have come to employ it as a rapidly acting hypnotic, rather than as an anesthetic to take the place of ether, nitrous-oxide, procaine, etc. In operations about the nose and in using the cautery about the mouth and neck and in the removal of breasts with the cautery, we believe it of singular advantage. In these cases, supplementary anesthetics have not been necessary and sodium iso-amyl-ethyl-barbiturate has served as a complete anesthetic in itself. But to look upon sodium amytal primarily as a hypnotic, rather than as an anesthetic, is not to underestimate the advantages of the drug or its contribution to the comfort of the surgical patient.

In highly strung patients, psychic shock can equal surgical shock, and if, by putting such a patient, knowingly or unsuspectingly, to sleep in his room, we can reduce this type of shock, we have added materially to surgical management. We believe that by doing away with the anxiety of the trip to the operating room and the psychic suffocation of the ether mask, as much as by adding to the comfort of the patient after operation, the sodium barbiturates have won a lasting place in anesthesia.

In the sodium salts of the barbituric acid series the internist has a more dependable hypnotic and a rapidly acting one, as well as a control for eclamptic, tetanic, and strychnine convulsions. These derivative salts will prove a great asset in relieving pain and insomnia not responding to ordinary measures.

We feel that there is no contraindication to the use of this drug where surgical interference is necessary, except in case of extreme shock, uremic coma, diabetes or respiratory obstruction. It should be given cautiously to the very aged and to those very susceptible to morphine.

In surgical cases, morphine and atropine are given as a preliminary medication, about 1 hour before the amytal. Supplementary anesthesia with procaine or nitrous oxide and oxygen is usually necessary in all important surgical procedures. The dose of amytal injected varies from 8 to 22 grains (0.52 to 1.5 Gm.), according to circumstances.

Spinal Anesthesia—Subarachnoid Block

In *Surg. Clin. North Amer.*, June, 1930, Dr. G. Labat, of University and Bellevue Hospital Medical College, New York, gives the essential elements in his technic of spinal anesthesia as follows:

Where to puncture: Any space between the twelfth dorsal and fourth lumbar spines, according to the extent of anesthesia desired.

How to puncture: Follow the middle line; keep the bevel of the needle facing east or west in the middle line of the back.

What needle: Medium gage. The Labat (80/11) nickeloid, unbreakable needle has been tested, improved and used for the last fourteen years with uniformly good results. Its specifications have been given elsewhere.

What anesthetic solution: Neocaine* crystals, dissolved in cerebrospinal fluid, with which the author has had no death since its introduction in surgical practice in 1916.

What dose: Adults, from 0.10 to 0.20 Gm.; the dose of 0.12 and 0.15 Gm. being sufficient in the great majority of cases. Children, from 0.03 to 0.10 Gm.

Amount of fluid: Always the capacity of the ampoule (3 cc.), whatever be the level of anesthesia desired, from the line of nipples to lower extremities.

Barbotage: Always; reducing the quantity of new fluid aspirated and number of the aspirations as lower punctures are made, in order to lower level of anesthesia.

Trendelenburg position: Immediately after the needle and syringe have been pulled out of the back. Do not lose time in placing a dressing or a drop of collodion. We have never

*A French product, distributed in the U. S. A. by the Anglo-French Drug Co., 1270 Broadway, New York City.

seen an infection at the site of puncture. Have the shoulder blades ready on the table. Precious time is too often lost in going after them.

When the operation has been completed, see that the horizontal position be not restored and that the elevator is ready. Transfer patient on adjustable stretcher, with head lower than pelvis. Improvise one with cushions, if none is at hand. Raise foot of the bed on the seat of a chair, if shock blocks are not handy at the time the patient is placed in bed. Maintain this position for three hours at least.

No hypertensive drug should be given before or during spinal anesthesia.

Dextrose Intravenously in Eclampsia

In *Am. J. Surg.*, June, 1930, Dr. W. T. McConnell, of Louisville, reports seven cases of eclampsia, treated by the intravenous drip method of administering dextrose, with good results.

The essential features of the apparatus used are two thermos bottles of 1,000 cc. capacity, each suspended in a wire frame and attached to a Y-tube which is, in turn, connected to a Murphy drip tube; from this a single rubber tube leads to a gold-plated silver canula. This canula is inserted through a phlebotomy opening into a vein just above the bend in the elbow.

The thermos feature keeps the solution at a constant temperature.

About 500 cc. of a 20-percent dextrose solution were usualy employed.

The author considers it reasonable to suppose that the toxin of eclampsia stimulates the production of insulin and that the eclamptic convulsions are precipitated, in part at least, by the sudden appearance in the blood stream of an *overload of insulin*. If this is true, the beneficial influence of dextrose could be accounted for, in part, by its neutralizing effect on this insulin.

Acriflavine Treatment of Acute Anterior Gonorrheal Urethritis

Dr. M. L. Boyd, chief of department of urology, Emory University School of Medicine, Atlanta, writes in *Urol. & Cut. Rev.*, for May, 1930, that he has treated fifty-eight cases of early acute anterior gonorrheal urethitis with injections of a 1:1000 solution of acriflavine. In all cases the infection was satisfactorily arrested there being not a single failure. All patients were under observation for several weeks following the treatment.

Acriflavine is the only drug the author knows that has the three qualities needed to control early acute urethral infections; viz., high gonococcicidal power, capability of penetrating the mucosa to the depth attained by the gonococcus. and non-irritation to the urethra in higher concentration than is needed to kill the gonococcus.

Acriflavine is advocated only for the treatment of acute gonorrheal urethritis and only when it is perhaps 48 hours old.

Treatment is given in the office. Two injections are given daily. The patient is not permitted to inject the solution himself. One or two drams of aqueous solution of acriflavine are injected into the urethra and held there, by pressure of the thumb and forefinger on the penis back of the glans. By wrapping the penis in cotton, the distal part of the urethra is kept in contact with the acriflavine. The injections are usually not continued for more than 7 days. At the end of this time warm irrigations of potassium permanganate, 2 grains to the quart, are begun.

In only one of the patients treated was there the slightest evidence of urethral stricture, and in this instance the treatment was continued too long, on the patient's insistence.

The author states that never before has he been able to promise his patients that, if they came when their gonorrheal urethritis first began, he could invariably stop the infection. With acriflavine this can be done.

Importance of Vitamin B in the Food of Nurslings

In a paper read before the Los Angeles Obstetrical Society, Apr., 1929, published in *Squibb Memoranda*, June, 1930, Dr. E. M. Tarr, of Los Angeles, as the result of animal tests, points out that vitamin B requirements are three times as great for normal lactation as they are for optimum growth. Further, that the mammary gland does not secrete vitamin B in quantitative amounts. The ordinary individual requirements of the vitamin by nursing mothers must be supplemented in their food by a quantity necessary to supply the needs of the offspring.

Clinically, women who receive insufficient vitamin B during pregnancy are more liable to postpartum hemorrhage than are others, and their babies are more apt to develop intracranial hemorrhages.

The above is only a particular case of the general experimental finding, that the human body must depend upon extraneous sources for its supply of essential vitamins. Deficiency diseases may be expected where there is a pronounced shortage of certain vitamins in the food.

In Dr. Tarr's clinical experiments, a group of nursing babies, whose intake of mother's milk was supplemented by the addition of vitamin B, showed a far greater increase in weight than another group of similar breast-fed babies who did not receive the additional vitamin.

Clinical Value of New Local Anesthetics

A number of new local anesthetic drugs of the piperidino or piperidyl groups have been tested clinically by Dr. W. R. Meeker, of Mobile, Ala. In *Surg. Gynec. and Obst.*, June, 1930, he reports that local anesthetic drug No. 33C (gamma-2-methylpiperidino-propyl benzoate hydrochloride) produces a diffusible, complete and lasting anesthesia; it compares favorably with novocaine, in systemic toxicity; it causes no local tissue damage nor consequent interference with

healing; its solutions do not deteriorate by boiling, and are compatible with adrenalin. Clinical experience, thus far, is very favorable and, if it continues as satisfactory in more widespread use, this drug promises to be the local anesthetic of choice.

Dermatitis Following Iodoform Gauze Packing

Cases of iodoform poisoning are very rare. In *Am. J. Obst & Gynec.*, May, 1930, Dr. N. B. Sackett, of New York, reports a case in which a woman with severe postpartum hemorrhage had her uterus packed with gauze saturated with 7 percent of iodoform. Forty-eight hours later, a rash appeared on her face, which persisted for 3 days and then gradually faded.

Defective Liver Function and Skin Lesions

In *Ann. Intern. Med.*, June, 1930, Dr. F. Smithies, of Chicago, furnishes evidence suggesting that, in certain endogenous and chronic dermatoses (clinically called eczema, hives, urticaria, psoriasis, etc.,), chronic inflammatory lesions of the liver and biliary tract prevent normal excretion of bile, limit the storage of glycogen and permit toxic substances to pass into the blood stream in greater than normal quantity.

It is suggested that this constant or intermittent increase of toxic substances in the blood stream interferes with normal mechanical and chemical conditions in the capillary bed. Depending upon the nature of the toxic substance and the tissue response, dermatologic lesions follow.

Chronicity of the lesions depends upon the constancy or irregularity of the hepatic and biliary tract defect, the nature and quantity of the toxic protein derivative in the capillary bed and the local resistance of the skin structures.

The management of patients falling into the above classification includes no local treatment of the dermatologic lesions, other than cleansing and mechanical protection; but suitable diet and attempts at promoting free excretion of bile and preventing hepatic and gall-tract stagnation have as their purpose the restoration of physiologic hepatic function—protective storage and the elaboration and excretion of bile. Nine (9) patients so managed demonstrate the efficiency of this method. Endogenous skin lesions, regarded as incurable, either disappeared or become less pronounced.

Measles Prophylaxis

In J. A. M. A., July 5, 1930, Drs. L. H. Barenberg, J. M. Lewis and W. H. Messer, of New York, give the results of a comparative study of the use of adult whole blood, convalescent serum and immune goat serum as protective measures in epidemic measles.

Of fifty-six children, actively exposed, who received 30 cc. of adult whole blood intramuscularly, 64 percent were benefited by the injections. The blood must, however, be injected within the first five days of the incubation period. One hundred and twelve (112) children who were not actively exposed and received the same quantity of blood remained free from measles.

Sixty (60) children received 6 cc. of convalescent measles serum and, of these, 73 percent remained completely protected, while 23 percent developed markedly attenuated measles.

The entire group of thirty-eight children who received 8 cc. of immune goat serum (Tunnicliff) developed typical measles, although most of them received the serum within the first three days of the incubation period.

The exposed children who received neither blood nor serum all developed typical measles.

The authors conclude that convalescent serum is the most effective prophylactic measure against measles, but its application is limited owing to its scarcity. The blood of normal adults who have previously had measles is of great value in bringing about an attenuated form of measles and is the most practical method of prophylaxis.

Gas-Oxygen Analgesia in Dentistry

Nitrous oxide-oxygen anesthesia, in dental and other surgical operations, is thoroughly well known. In *Anesth. & Analg.*, May-June, 1930, L. P. Hamilton, D.D.S., of Coral Gables, Fla., discusses its analgesic use for minor dental surgery. The stage of analgesic anesthesia for operative purposes may be described as that point at which tactile sensation is diminished or abolished, with consciousness, sufficient for cooperation, maintained.

The dental operator himself should induce the analgesia, and it is maintained through a proper quantity mixture of gases, controlled breathing and dilution with air.

The mental or psychologic preparation of a patient for analgesia is by far the most important, most complicated and most difficult problem to be met by the operator in the dental office, and most failures are attributable to this fact. The operator must obtain the patient's confidence. Tact and suggestion will do much to eliminate fear and inspire confidence. Noise or anything else that will tend to distract the attention of the patient from the operator's suggestions must be eliminated. The patient will be conscious, but will register no pain.

Split Fingernails

A split fingernail has no tendency to recover spontaneously. In *M. J. & Record*, June 18, 1930, Dr. W. W. Carter, of New York, gives the following treatment for this annoying condition.

The patient is instructed to keep the end of the finger well bandaged and protected until the nail has grown ⅜-inch beyond the finger. Then three equidistant perforations are made through the nail on either side of the slit, beyond the finger. Very fine, strong, elastic sutures are then passed through corresponding perforations and tied after the edges of the slit are drawn together as closely as possible.

As the nail grows out it is pared at the distal end and another stuture is placed near the end of the finger. It usually requires several weeks before the integral part of the nail reaches the extremity of the finger.

The Effects of Dextrose Upon the Respiratory Quotient

What happens to dextrose after it has been injected intravenously? What influence does it have upon the postoperative state?

In *Am. J. Surg.*, May, 1930, Dr. H. Koster and associates, of Brooklyn, give the results of their experimental clinical investigation of these questions, based upon variations of the respiratory quotient.

They have found that the respiratory quotient does not rise, following intravenous dextrose administration (250 cc. of a 20-percent solution) after abdominal operations, for a period of approximately one week. Insulin may, however, be able to stimulate the oxidation of sugar during this period.

The postoperative state is definitely associated with a disturbance in carbohydrate metabolism.

Cargile Membrane for Prevention of Abdominal Adhesions

In *Am. J. Surg.*, May, 1930, Dr. G. S. Foster, of Manchester, N. H., reports that an experience of 5 years has proved the value of Cargile membrance in preventing intra-abdominal postoperative adhesions.

In clean intra-abdominal cases, such as hysterectomy, cholecystectomy, intestinal resection, strangulated hernias, etc., the author always uses Cargile membrane as a routine, to cover all suture lines and raw surfaces. In purulent intra-abdominal conditions, in which dense adhesions must be expected, the patient is instructed to return after a period of 2 years and a secondary celiotomy, with the application of the Cargile membrance, is then performed.

The technic necessitates the strictest asepsis, assistants who are thoroughly familiar with the procedures and a perfectly clean surface without blood, serum, etc., so that the membrane may be snugly applied without wrinkling. It should never be moistened. Within six hours, the Cargile membrane has become quite a firm part of the surface on which it has been placed.

Specific Gravity of Urine a Test of Kidney Function

In J.A.M.A., June 14, 1930, Drs. F. H. Lashmet and L. H. Newburgh assert that the determination of the specific gravity of the urine, under proper conditions, detects a lowering of the functional ability of the kidneys long before this fact is discernible by means of other recognized tests.

The patient is prepared for 3 days, during which time he is confined to bed and receives a standard diet consisting of 45 Gm. protein, 106 Gm. fat, 180 Gm. carbohydrates, the number of calories being about 2,000 and the sodium chloride intake from 2 to 3 Gm. daily. The fluid intake is limited to about 1,500 cc. daily.

The actual test begins at 6 P. M. of the third day after the patient's supper, food and fluid being stopped till noon the following day. All urine is discarded except as follows: At 10 A. M. the bladder is emptied and this urine is discarded. The specimen for examination is obtained by emptying the bladder again promptly at noon, and its specific gravity is determined.

Of 120 cases examined, the urine of 91 failed to reach the normal figure of 1026. In these, kidney disease was suspected because of albumin in the urine and because, in addition, many gave other evidence of nephritis, either in the history or in the physical examination or because of a low phenolsulphonephthalein test.

Relief of Atelectasis by Carbon Dioxide Inhalations

An editorial in J.A.M.A., June 21, 1930, points out that it has been observed postoperatively that pneumonia occurs with occlusion and collapse of the lung. This collapse (atelectasis), induced especially by the breathing being impeded by pain (more noticeable in abdominal cases), precedes postoperative pneumonia and gives it the character of occlusion.

A new concept of treatment is to keep the air passages mechanically open and drained, by the inhalation of carbon dioxide, diluted to from 5 to 7 percent with oxygen or air, which prevents atelectasis. This treatment is indicated in the following conditions in which atelectasis and pneumonia are associated:

1.—The new born. Before birth, the lungs are normally atelectatic. The first cry only partly distends the lungs, so that continuance of the atelectasis predisposes to pneumonia. To overcome this, the ancient custom was to make a child cry fifteen minutes or more twice a day. The more recent physiologic teaching is to utilize inhalations of 5 percent (or, better, 7 percent) carbon dioxide with oxygen.

2.—Postoperative pneumonia can be almost entirely eliminated by the routine inhalation of carbon dioxide after the termination of the anesthesia and operation. The utility of carbon dioxide, used without pure oxygen, is proved in general surgical practice, in which it is mixed with ordinary atmospheric air.

3.—Carbon monoxide asphyxia is relieved by the early inhalation of carbon dioxide, which also causes a notable decrease in postasphyxial pneumonia. Where carbon dioxide was not employed with gas victims, an excess of fluid was noted in the respiratory tract, which proved the evidence of lung injury, and, in many cases, some degree of bronchopneumonia was present.

4.—Lobar pneumonia is a pneumococcic atelectasis and was so proved when atelectasis was mechanically produced with inflated rubber bags blocking the bronchial airways of dogs, narcotized by iso-amyl-ethyl-barbituric acid to prevent coughing. The degree of atelectasis was measured by the displacement of the heart and the mediastinum toward the affected side, as shown roentgenographically. Then a fatal unilateral pneumonia was experimentally induced by placing

a virulent culture of pneumococcus in the collapsed lung.

Simple pneumococcic atelectasis can be relieved in a patient by aspirating the bronchi through the bronchoscope and then by administering carbon dioxide, and the heart will return to its normal position.

Epidural Anesthesia in Obstetrics

In *Anesthesia & Analgesia*, Mar.-Apr., 1930, Dr. M. P. Rucker, of Richmond, Va., points out the advantages of epidural anesthesia in obstetrics, on the basis of 966 cases so managed. There are no contraindications except deformity of the sacrum, and the method is specially recommended in the presence of pulmonary tuberculosis and in grave heart disease.

A fresh, 2-percent solution of procaine is used for each case and the author prefers not to use adrenalin (epinephrin) unless absolutely indicated, as it arrests contractions of the uterus.

Of the 966 deliveries, 802 were successful and 130 were failures; partial success was obtained in 34. There were 3 maternal deaths. Extremely fat or very nervous patients are not suitable for this type of obstetric anesthesia.

Manic-Depressive Phychosis in Private Practice

Only serious cases of manic-depressive psychosis are seen in institutions. In *Arch. Neurol. & Psychiat.*, Apr., 1930, Dr. H. A. Paskins gives many details of 444 mild cases seen in private practice. The great majority of these attacks lasted six months or less, and the average interval between attacks varied from eight to forty years, the average being seven years. Thus, cases of manic-depressive psychosis seen in private practice are characterized by longer intervals between attacks than are noted in institutional cases.

Proteal Treatment of Drug Addiction

In 1927, Drs. M. G. Carter and E. H. Williams, of Los Angeles, published their favorable observations from the use of a 2-percent alfalfa solution (Proteal) in combating drug addiction.

In *M. J. & Record, June* 18, 1930, these authors report their further observations, from which they reiterate the following conclusions:

1.—The patients taking proteal treatment suffered very little discomfort, and remained in comparatively good physical condition.

2.—Necessary nursing care was minimized.

3.—It is probable that such vegetable proteins as those from millet, rape, hemp seed, etc., will give quite as satisfactory results as the alfalfa protein, since there is a definite and similar response when they are administered.

4.—The action of the foreign protein in these cases seems to be fortified by the simultaneous administration of such endocrine preparations as orchic substance and ovarian products. The rationale of this is suggested by the fact that drug addiction almost invariably affects sexual function.

5.—There is also considerable evidence suggesting that testicular and ovarian preparations act as "general stimulants" to the entire endocrine gland system. If this is true, certain x-ray treatments ought to be helpful in these cases.

6.—Proteals are neither secret nor patented preparations. They cost only a few cents, either to make or to buy.

The alfalfa proteal was administered in 1cc. dose every 4 hours for the first 24 hours, then at intervals of 6 hours during the next 48 hours, then three times daily for the next three or four days and once daily thereafter.

From two years continuous use, the authors believe that proteal treatment of drug addiction works better than any other form of treatment.

From experiments which they are now making they further believe that association of adrenal cortex extract will enhance the beneficial effect of the proteal treatment.

New Conception of Tuberculosis

In *Rev. Thérap. d. Alcaloides*, Paris, June, 1930, Dr. A. Finot, points out that recent investigations demonstrate that the Koch bacillus is only one of the stages in the evolution of the tuberculosis virus.

Calmette proposes to distinguish two, or rather three, tuberculous groups:

1.—*Prebacillary granulemia*, due to the ultravirus. The disease here is generally acute, without any properly called Koch bacilli being present. The condition is strictly pre-tuberculous—certain pleural, pericardial, peritoneal, articular or meningeal effusions; certain hydroceles, nodular or polymorphous erythema; tuberculids of the skin; certain septicemias, such as Landouzy's typho-bacillosis.

2.—*Granulosis* or transitionary form. In this some normal Koch bacilli are sometimes found, but there are abundant filtrable elements.

3.—*Bacillosis* or tuberculosis, properly so-called.

According to these conceptions, tuberculosis is a contagious disease and in no sense a hereditary one.

The Use and Misuse of Insulin

In *J.A.M.A.*, June 21, 1930, Dr. N. B. Foster, of New York, states that, despite the introduction of insulin, mortality statistics for diabetes show a decided increase. The increase is especially in urban and state rates.

The reason is, first, that there is, in the general profession, an astonishing fear of insulin, especially of insulin shock. Some fear to give insulin because they believe that if once used it can never be discontinued. Dr. Foster shows that both opinions are fallacious.

In the majority of cases, the diabetic state is mild and insulin can be abandoned once convalescence is established.

In many surgical conditions complicated by diabetes, the principal value of insulin is to

combat acidosis—the glycosuria can wait. The amount of insulin used is variable, but it should always be enough and gaged by the examination of the urine every 2 hours. When there is sugar in the urine, insulin should be used; when there is none, dextrose should be given.

A normal person can take from 5 to 10 units of insulin with no notable effect. The amount of insulin to be given to a diabetic patient can only be arrived at by experiment and depends on the amount of sugar in the urine. One unit of insulin will care for about 2 Gm. of dextrose, and the dosage can be gaged from that. Patients can be instructed to test their own urine and arrange their insulin intake accordingly, and this is the proper thing to do.

The Five Most Common Errors in Obstetric Practice

In *Illinois M. J.*, June, 1930, Dr. G. K. Sims, of Chicago, gives the following as the five most common errors in obstetric practice:

1.—The lack of a complete obstetric diagnosis.

2.—A lack of the knowledge of, or failure to appreciate, the real principles of asepsis and antisepsis.

3.—Ignorance of the course of occipitoposterior posterior positions.

4.—Operating before dilatation of the cervix is complete.

5.—Neglect of the mother and baby during labor, because of inability to appreciate the pathologic dignity of the art of obstetrics.

Liver Function in Heart Failure

Jaundice is a common occurrence in congestive heart failure.

Following an investigation over a period of five months, in the Medical Division of the Bellevue Hospital, New York, Dr. N. Jolliffe arrives at the following conclusions:

1—The frequency of clinical jaundice, in a series of 231 patients with congestive heart failure, was observed to be 2.1 precent. Altogether 16 patients suggested jaundice, of whom 5 developed actual clinical jaundice.

2.—Jaundice in congestive heart failure may be of either the obstructive or non-obstructive type.

3.—The results of this study show that fifteen of the sixteen patients (93 percent) had some alteration in liver function.

4.—No characteristic type of liver dysfunction in chronic passive congestion was found. Three subjects showed only one abnormal response to liver function tests. Only one subject showed all four tests abnormal.

5.—No parallelism between degree of heart failure and impairment of liver function could be noted in individual cases. Patients die showing little alteration in liver function. Patients improve showing marked functional liver impairment. Patients with marked congestive failure may show no liver dysfunction. As a group there is, perhaps, a parallel between the changes in liver function and the degree of edema and size of the liver.

6.—Any liver dysfunction induced by an attack of chronic passive congestion is apparently not permanent. Liver dysfunction still in evidence after recovery from an attack of chronic passive congestion probably indicates an independent liver impairment.

Alkalosis

Dealing with alkalosis—which may occur in intestinal obstruction and various other conditions—and especially with the toxemia and dehydration which accompanies it, Drs. L. W. McGrath and F. R. Hook, of Brooklyn, in *Am. J. Surg.*, June, 1930, state that the efficiency of the treatment of alkalosis by the use of hypertonic solution of sodium chloride, has been proved, both experimentally and clinically. Sodium chloride in 2-to 25-percent solution, intravenously, acts as a strong intestinal stimulant.

It has also ben suggested by several clinical investigators that the chlorides be kept up to their proper level during the first five postoperative days.

The authors consider this conception well founded and in practice it has given excellent results. It has been their custom to give 1,000 cc. of isotonic saline solution intravenously, plus 100 to 500 cc. of 2-percent sodium chloride solution and 40 to 50 Gm. of dextrose daily. The dextrose is given in 5-percent solution, with the isotonic saline. This, they have found, controls the toxemia, in the average case of alkalosis, quite effectively.

In addition to the intravenous therapy, it is advisable to drain the upper intestinal tract of its toxic contents, either by repeated gastric lavages or duodenal drainage.

Those who have to do with the postoperative care of patients should be on the lookout for the early signs of the toxemia associated with paralytic ileus. These are usually a feeling of fullness in the epigastrium, belching, heartburn, hiccup, a craving for water and a decrease in urinary output.

Treatment of Fractures in General Practice

In *Practitioner*, May, 1930, Dr. J. B. Oldham, of Liverpool, Eng., reviews the treatment of fractures, especially those of the upper limb, by the general practitioner.

The injured part should always be x-rayed in two planes at right angles to one another. The general procedure should be: X-ray; reduce; re-x-ray; and, if the x-ray does not show that good reduction is obtained, keep on re-x-raying and reducing until all is satisfactory.

Splints should never be too tight; it is too often forgotten that splints that are quite comfortable when put on may be dangerously tight a few hours later.

If, when union is well advanced, there is still considerable stiffness or limitation of movement, manipulation, under full anesthesia, will improve the function of the limb, provided that the disability is not due to a bony lock.

Certain points must always be observed when manipulating a joint: (1) under no circumstances must a joint be manipulated if it is the seat of active disease; (2) full anesthesia is essential; (3) steady, increasing tension must

be used and sudden jerking movements avoided; (4) the line of fracture must be protected from all risk of injury; (5) the joint must be moved through its full range of movement once, and once only; (6) as soon as the patient has sufficiently recovered from the effects of the anesthetic he should be put through all his movements in order to convince him that the joint is freely movable.

Two special warnings must be given; First, special care is needed in manipulation after a fracture of the patella or olecranon; the second warning is in regard to mistaking traumatic arthritis for adhesions.

In compound fractures, the extensive surgery recommended in textbooks does not always give good results and a simpler procedure is recommended. The author advises the practitioner who is called upon to treat a compound fracture to decide, first, if local surgical debridement, etc., of the injured area is required; if they are, the patient should be treated in a hospital; if not, he may undertake the treatment himself.

All that is done is as follows: Antitetanic serum is given, the patient is anesthetized and, with full aseptic precautions, the actual wound is covered by a layer of sterile gauze. Then the surrounding area is cleaned with ether and painted with iodine. As for the wound itself, do not put a finger or an instrument of any kind into it. Never wash, scrub, handle or touch the lacerated surfaces—either bone or soft parts. Spray the wound with iodine and, if there is any bone or tissue lying free—entirely free—gingerly remove it with forceps. Then apply a large sterile dressing to the whole area—never put in a primary drain—reduce the fracture and splint the limb. If possible the dressing should not be removed for 10, 12 or more days. High temperature is not an indication for reexamination.

Sinusitis

Some valuable suggestions in regard to the examination of the accessory nasal sinuses are offered by Drs. L. W. Oaks, and H. G. Merrill, of Provo, Utah, in *Eye, Ear, Nose, and Throat Monthly*, June, 1930.

The absence of pain is of no significance in the question of the possible presence of sinusitis; in 150 proved cases, pain was absent in 69.

Periodic stuffiness of the nose, vertigo, hoarseness of intermittent character and post-nasal discharge are common findings.

Examination of the nose, as usually carried out, is of relatively little value; but there is information to be obtained if the examination is made in the best of light and with such detail of observation as to identify and note minute departures from normal. The signs elicited are: alternating intumescence; little, inspissated remains of secretion; membranes of distinctly different coloration in the two nasal chambers; localized areas of edema about sinus ostia; evanescent edematoses, such as tiny polypi appearing and disappearing with recurring colds; and the great variations in color of nasal membranes in successive patients, even though they may be of identical complexions.

The advent of the radio-opaque fluids into sinus work has marked a great step forward in diagnosis and their use should be practiced with increasing assurance. In the authors' experience the measure is of the greatest value in studying the maxillary sinuses, and is indispensable. Ordinary transillumination is not to be relied upon.

Calcium in Acne Vulgaris

A mere list of the treatments recommended for acne would fill a page, but the disease is so distressing and often so resistant to treatment that another suggestion may not come amiss.

Dr. D. Bloom reports, in *N. Y. State J. of M.* for June 1, 1929, that several such cases have shown marked improvement following intravenous injections of calcium chloride. The dosage begins with 5 cc. of a 10-percent solution every third day, increasing to 10 cc. every second day. Twenty or more injections are given.

The author cautions that the injections must be given *slowly* and stopped as soon as the patient complains of a sensation of heat; also that great care must be taken that the solution does not escape into the tissues, as sloughing may result.*

Early Diagnosis of Intestinal Tumors

The recognition of intestinal neoplasms in the early stages is usually difficult and a correct diagnosis is often made only during operation or autopsy.

In *Am. Med.*, June, 1930, Dr. H. Illoway, of New York City, gives the clinical histories of two cases which, on investigation, gave symptoms of an obstruction somewhere in the small intestines. The condition could only result from an intussusception, a strangulation of a bowel loop or a tumor. The differentiation narrowed down to tumor and the localization of this was arrived at by a study of the gastric contents. In the first case the green color of the contents indicated that the chyme could not pass much beyond the opening of the common duct. Operation verified the existence of a tumor in the lower segment of duodenum.

In the second case investigation of the stomach contents showed that the biliverdin of the bile had passed down a sufficient distance to become changed into bilirubin and sufficiently far down to take on the fecal color. It was evident that the tumor was far down in the small intestine; operation disclosed a tumor in the ileum near the cecum.

Examination of the gastric contents in each of these two cases made possible the correct diagnosis of the otherwise obscure pathologic condition and enabled the surgeon to locate the seat of the disease with exactness.

* The use of a solution of calcium gluconate would obviate this danger and should produce the same effects.—Ed.

NEW BOOKS

Rose and Carless: Surgery

ROSE AND CARLESS' MANUAL OF SURGERY. For Students and Practitioners. By *Cecil P. C. Wakely, F.R.C.S., (Eng.), F.R.S., (Edin.), and John B. Hunter, M.C., M. Chir. (Cantab.), F.R.C.S., (Eng.). Thirteenth Edition. New York: William Wood & Company. Price* $11.00.

This splendid volume is in its thirteenth edition. It always has been an excellent work for students and practitioners. In its present form, its general appearance is good and its text is much enhanced by additions to various chapters. Advances made in different branches of surgery are, in many chapters succinctly, described, a characteristic which has marked all the editions of this worth-while work since its first appearance thirty-two years ago.

The material is arranged in forty-nine chapters. Extraneous subject matter and padding are notably absent. Only important facts are stated. The book, as a whole, therefore, is a text par excellence for medical students. The general practitioner will also find in it a great deal of valuable information.

Unfortunately the illustrations do no justice to this otherwise admirable manual and it is hoped that future editions will improve that phase of the work.

Pen drawings are, at best diagrammatic; but if such drawings are of poor quality, as they are in this book, they not only do not enhance the text, but actually detract from it. The photographs, too, are bad. On the other hand, there are colored plates in the volume, all of which are admirably executed.

Chapter XI, on "The Use of Physical Agencies in Surgery," is brought up to date and has valuable additions on the use of radium and radio-therapy as therapeutic agents. Electricity, as a diagnostic and therapeutic means, heliotherapy, thermo-therapy, active and passive exercise, as well as other physical agencies used in treatment, are thoroughly discussed, without excessive detail.

The chapter on "Orthopedic Surgery" is complete. It is written well, thoroughly systematized and, on the whole, of great value, particularly to the student. It is, in the opinion of the reviewer, one of the best chapters in the book.

The chapter on "Affections of the Nose and Naso-pharynx," revised by Mr. V. E. Negus, is creditable. The chapter on "Surgical Affections of the Eye" is thoroughly gone into by Mr. Harman.

Abdominal surgery and hernia are of the same type as the chapter on orthopedic surgery —concise, to the point and lucid.

The chapter by Dr. Holland, on "Surgery of the Female Genital Organs" is too brief. Many important gynecologic conditions, with which the student should be conversant, are omitted. For instance, much space is given to the classification of tumors and nothing is said about the various forms of repair for injuries to the perineum. The classification of tumors is good. Infections of the female genital tract are too lightly touched upon.

An excellent chapter on "Tropical Surgery," by Sir Frank Powell Connor, follows the last chapter discussed.

It would, perhaps, be better to have the chapter on "Amputations" follow those on "Fractures and Dislocations," instead of that on "Tropical Surgery."

An admirable review on "Anesthesia," by Dr. C. F. Hadfield, concludes the main body of the work. Every form of anesthesia is discussed and the chapter is well written.

A "Radiographic Supplement" is added. The illustrations here are exceptionally well executed and are far superior to the average x-ray reproductions, the reason being that these skiagraphs are produced as negatives, and not as positives. This is a wise procedure. We are accustomed to see x-ray films in the negative form and not transferred as positives. Of course, when a positive print is made a great deal of detail is often lost during the transfer. In this instance the fine gradations and half tones are retained.

All in all, this textbook should serve the needs of the medical student or practitioner who desires a practical manual of general surgery.

M. T.

Robinson: Birth Control Clinics

SEVENTY BIRTH CONTROL CLINICS. A Survey and Analysis Including the General Effects of Control on Size and Quality of Population. *By Caroline Hadley Robinson. Foreword by Robert Latou Dickinson. Baltimore: The Williams & Wilkins Company.* 1930. *Price* $4.00.

The subject of birth control is occupying a good deal of attention, these days, and, since the opposition is largely dogmatic or emotional, it is highly important that our ideas on the subject should be clarified.

The United States is the only important country where the study and practice of contraception is seriously hampered by obsolete laws and by the opposition of ignorant and fanatical persons. In some countries, such as Germany, Austria, Russia and Mexico, such studies are even fostered and supported by the government.

The author of this book is the wife of a well known criminologist and is a Master of Arts in economics and, working under the auspices of

the National Committee on Maternal Health, has personally visited and studied most of the birth control clinics, here and abroad. Her fund of information is unusually large and her training is such as to enable her to evaluate it soundly.

The first half of the book is devoted to descriptions of the organization and operation of seventy clinics in various parts of the world, with discussions of the methods of financing, case procedure, collection of statistics, etc., and pertinent suggestions as to the improvement of existing procedures. There is nothing in the entire volume regarding the technic of contraception.

The second half is even more important and deals with the laws, customs and opinions along these lines and with the possible effects of birth control on the quantity and quality of the population. One by one, the author takes up the various objections which have been urged against these practices and, in a logical and brilliant manner, reduces them to absurdities.

The entire volume is a very fine example of true scientific method, applied to sociologic investigation. Summaries and tables are used, where they will lead to clearer understanding, and an ample bibliography adds to the value of the work.

In addition to these advantages, the book is written with the power and skill of a trained thinker and writer, who knows her subject and is able to handle it in a way which makes it truly fastinating reading.

There is, so far as we know, no work in English covering anything like this ground, and we feel that no one is qualified to speak with full authority on the subject of birth control (and all physicians *should* be so qualified) who has not read it.

Stedman's Medical Dictionary

A Practical Medical Dictionary. *By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine" and of the "Reference Handbook of the Medical Sciences" Formerly editor of the "Medical Record." 11th Edition revised. Illustrated. New York: William Wood and Company.* 1930. *Price* $7.50.

The eleventh revised edition of Stedman's medical dictionary is a most creditable piece of work, both as regards the appearance and general craftsmanship of the volume and of the thoroughness of the lexicography. A number of new terms which have been introduced by the advances in medical and allied sciences have been included, and changes or restrictions in the meaning of existing terms noted.

The editor of this dictionary has constantly labored for classical orthographic medical purity, an ideal which is, indeed, in every way laudable and desirable. Unfortunately, a number of hybrid and mongrel terms and orthographies have been introduced into medical science, accepted and are in general use. However, since a word is only a symbol which connotes a definite idea, so long as it does this the purity of its form is only of secondary importance, for general purposes. There is, none the less, the practical inconveniences that, when self-standardized dictionaries differ in their word forms for the same thing, medical writers and editors are bewildered. Such differences emphasize the necessity, not alone for medical science, but for the etymologic and orthographic standardization of all written language in America at the present time, of an academic body whose ruling in such matters will be accepted by all as authoritative and final.

Achard: Edema of Bright's Disease

The Oedema of Bright's Disease. *By Ch. Achard, Member of the Institute, General Secretary of the Academy of Medicine, Professor in the Faculty of Medicine of Paris. Translated by Maurice Marcus, M.B., B.S. (London). New York: Macmillan Company.* 1930. *Price* $3.25.

The object of the Anglo-French Library of Medical and Biological Science is to bring British and French men of science into closer relationship, by translating and publishing important books in both languages simultaneously.

Dr. Achard, Professor in the Faculty of Medicine of Paris, is an authority on the clinical study of edema. In the first two of the four parts which constitute his monograph he deals with the anatomic, biochemical and clinical descriptions; the author then undertakes an exhaustive study of the pathogenesis. He shows that the edema of Bright's disease, like edema in general, is mainly due to disturbance of an extra-renal function which normally regulates extravasation and resorption. To Achard, more than to anyone else, is due the recognition of chloride retention as the principal factor in edema. He drew the picture of what is known as the "lacunar" system.

The book gives a classification of the nephritides, and the conception of "lipoid nephrosis" is discussed.

This volume should be of interest to internists, as it offers a clear discussion of the most recent scientific opinions upon the causes and phenomena of the baffling condition known as edema.

Tobey: Riders of the Plagues

Riders of The Plagues; The Story of the Conquest of Disease. *By James A. Tobey, Doctor of Public Health. New York; Charles Scribner's Sons.* 1930. *Price* $3.50.

The author, who is an expert public health official, devotes the first two of the twelve chapters which form his book to descriptions of the great plagues which in earlier times devastated the world.

The dawn of modern scientific sanitation appeared in the early eighteenth century, with the arousing of public consciousness to the importance of dealing effectively with epidemics. In England, where this work was particularly initiated, it culminated in the success of Howard and Shaftesbury in the cleaning up of jail fever and the bettering of factory hygiene, especially in the case of children.

Three-fourths of the story concerns strictly modern public health work and includes the advances of Pasteur, Lister and their successors in the conquest of infections, the origin of mod-

ern nursing with Florence Nightingale, the stamping out of yellow fever and Trudeau's work in tuberculosis.

The work is to a great extent biographic and tells the stories of individual workers who contributed their quotas in reaching the present-day status of public sanitation. Here we find such items as hookworm disease, syphilis, pellagra and the work of modern chemists in nutrition and the segregation of vitamins as factors whose deficiencies are causative of various classes of widely spread diseases.

The stories are all well and vividly told and, to those who are not familiar with them, form good and interesting reading. The book is one which should find its mark more among the laity than in the medical profession, but physicians may read it to refresh their knowledge and they may with confidence commend it to interested non-professional friends.

Stieglitz: Arterial Hypertension

ARTERIAL HYPERTENSION. *By Edward J. Stieglitz, M.S., M.D., Assistant Clinical Professor of Medicine, Rush Medical College, Univ. of Chicago; etc. Foreword By Rollin T. Woodyatt, M.D., Clinical Professor of Medicine, Rush Medical College, University of Chicago; etc.* With 21 *Illustrations. New York: Paul B. Hoeber, Inc.* 1930. *Price* $5.50.

The importance of cardiovascular-renal diseases in mortality and the close association of arterial hypertension with this group makes the appearance of Dr. Stieglitz' book on the clinical study of this latter entity decidedly interesting and desirable.

It cannot be said that the etiology of arterial hypertension is known; but a critical analysis of the vast literature of the subject, such as Dr. Stieglitz gives, supplemented by a large number of clinical observations, will go a long way to get a better understanding of the factors underlying the condition and stimulate further clinical studies by others..

There are nine chapters proper in the book, dealing with the anatomy, etiology, symptoms, prognosis and treatment of hypertension, also with the cardiac and renal factors, and a special chapter is devoted to hypertension in pregnancy.

There is a bibliography of over 1,100 references. The book is well and clearly printed on good paper.

The subject treated is one that concerns every physician, and an elaborate collective review, with illustrative clinical examples and deductions therefrom, as presented here, should find a large and appreciative reception.

Campbell: Therapeutics

HANDBOOK OF THERAPEUTICS. *By David Campbell, M.C., M.A., B.Sc., M.D., "Pollok" Lecturer in Materia Medica and Pharmacology in the University of Glasgow; etc. New York: William Wood and Company.* 1930. *Price* $4.50.

In this handbook, the author's aim is to furnish the student and the young practitioner with a reasoned criticism of therapeutic measures and with a simple account of what is, in his view, the best treatment of individual diseases.

The book is intended to supply the deficiencies of therapeutic teaching in the medical curriculum and for quick reference.

Following some introductory general remarks, the arrangement is in chapters dealing with diseases of the various systems. The treatments recommended are of the usual sound, generally-approved type. A satisfactory work of its kind.

Smiley, Gould and Melby: Hygiene

THE PRINCIPLES AND PRACTICE OF HYGIENE. *By Dean Franklin Smiley, A.B., M.D., Medical Adviser and Professor of Hygiene in Cornell University, Adrian Gordon Gould, Ph.B., M.D., Assistant Medical Adviser and Assistant Professor of Hygiene in Cornell University, and Elizabeth Melby, M.A. (Columbia), R.N., Assistant Professor, Yale University School of Nursing. New York: The Macmillan Company.* 1930. *Price* $2.50.

Although not so stated in the title, this volume is evidently intended by the authors as a manual of personal hygiene for student nurses. As they say in the preface: "We present in these pages, not only what we believe a nurse should know about the protection and promotion of her own health, but also a number of facts which we think she should know concerning the health of the child, the boy, the girl and of the elderly man or woman."

The paragraph cited really describes the book and it is only necessary to add that the facts are lucidly stated, concisely but yet sufficiently; that all pertinent facts are included; that the illustrations and bookwork are excellent; and that the arrangement of the 26 chapters comprising the book is very satisfactory.

This manual, not only carries out its intentions, but physicians may recommend it to patients and others as a high-class work on the science of right living.

Gudger: The Candirú

THE CANDIRÚ. The Only Vertebrate Parasite of Man. *By Eugene Willis Gudger, Ph. D., Bibliographer and Associate in Ichthyology, American Museum of Natural History, New York City. With a Foreword by Aldred Scott Warthin, Ph.D., M.D., LL.D., Professor of Pathology and Director of the Pathological Laboratories in the University of Michigan, Ann Arbor.* With 18 *Illustrations. New York: Paul B. Hoeber, Inc.* 1930. *Price* $1.50.

Reports have come, from time to time, on the authority of travelers in the Amazon basin, in Brazil, that a small fish frequented that great river which had the distressing habit of entering the urethras of men or the vaginas of women who, while bathing, were so careless as to urinate in the water, these fish being urinophilous.

Dr. Gudger, an accomplished ichthyologist with a predilection for the curiosities of science, has spent a great deal of time and much effort in collecting all available references to this subject and, where possible, in correspondence with those who might have first-hand knowledge of the matter, and has recorded the results of his investigations in this interesting little volume.

It seems to be conclusively proved that there are, in various South American rivers, several species of carnivorous, secretive catfish of small size (2 to 8 cm. long and 3 to 6 mm. in diameter), which have been known to penetrate the gills of larger fishes. It seems reasonably certain that some of these fishes are urinophilous. Several instances are on record where physicians have reported removing these animals from the vagina, urethra or bladder.

Dr. Gudger has summed up the evidence on these various points in a workmanlike manner and submits it for the consideration of interested persons. He, himself, is convinced of the facts as stated.

Physicians who have a taste for following the little-traveled byways of medical science and its environs will be able to spend a couple of very pleasant hours with this book; and to such it is recommended.

Solomons: Midwifery for Nurses

PRACTICAL MIDWIFERY FOR NURSES. *By Bethel Solomons, M.D., F.R.C.P.I., M.R.I.A., Master, Rotunda Hospital; Consulting Gynecologist, Aut-Even Hospital, Kilkenny, Countess of Wicklow Hospital, Arklow, and Newcastle Sanatorium; etc. London and New York: Humphrey Milford, Oxford University Press.* 1930. *Price* $2.75.

A book on midwifery by the Master of the Rotunda Hospital, Dublin, carries its own recommendation, as this school, for more than a century has earned a world-wide reputation as a center of obstetric teaching.

The present volume incorporates the teaching of Tweedy's "Practical Obstetrics," so far as relates to the instruction of nurses, but to this is added the author's personal experience. The various chapters cover the observation and care of the prospective mother, carrying her through pregnancy, labor and the puerperium, and the care of the infant.

All that the obstetric nurse needs to know is included here. Much of this knowledge is intended for the independent midwife, as in Europe she is much more in evidence than in the United States, where hospital delivery is the rule. Lecturers to nurses should gain many valuable hints from this teaching manual, and medical students will find many helpful suggestions.

Reed: Tropical Diseases in the United States

TROPICAL MEDICINE IN THE UNITED STATES. *By Alfred C. Reed, M.D., Professor of Tropical Medicine, The Pacific Institute of Tropical Medicine Within The George Williams Hooper Foundation For Medical Research of The University of California. 60 Illustrations. Philadelphia: J. B. Lippincott Company.* 1930. *Price* $6.00.

A book dealing with tropical diseases, insofar as these come within the purview of physicians practicing in the United States, would appear to be a desirable addition to our medical literature, and Dr. Reed's object in the present work is to supply that need.

As the author says, a surprisingly large area of the United States falls within the boundaries of hot climate. Many socalled tropical diseases, such as hookworm infection, malaria and bacillary dysentery, are endemic; many others are sporadic and may be seen at any time in special regions. Moreover, the facilities of present-day transportation and the ingress of foreigners from various strictly tropical areas are constantly bringing cases of unusual disease into our midst. The author, therefore, considers it worth while that the American practitioner should have available a short, practical clinical guide for diagnosis and control.

There are 11 special divisions dealt with, covering protozoal, spirochetal, bacillary, helminthic, mycotic, parasitic and other tropical diseases of doubtful etiology.

The author's position as a professor of tropical diseases on the Pacific coast and his opportunities there for the clinical study of many of the diseases described, render him peculiarly suited to write a textbook such as this and it should be found admirably suited for its special purpose.

Oliver: Stalkers of Pestilence

STALKERS OF PESTILENCE: The Story of Man's Ideas of Infection. *By Wade W. Oliver, M.D., Professor of Bacteriology, Long Island College Hospital; Visiting Professor, University of the Philippines (Auspices of the Rockefeller Foundation). Introduction by Theobald Smith, M.D., Ph.D., Director, Department of Animal Pathology, The Rockefeller Institute. 23 Illustrations. New York: Paul E. Hoeber,* 1930. *Price* $3.00

The purpose of this volume is briefly to trace the historical development of man's ideas of the nature of infectious diseases. The fact is developed that disease probably antedates man, since lesions indicative of pyorrhea, arthritis deformans, etc., have been found in the remains of prehistoric animals.

An attempt is made to unfold the ideas regarding infection held by the Egyptians and other peoples and the development of the story of the gradual acquisition of knowledge is brought down to our own twentieth century. Sketches of the outstanding figures in this continuous drama are given, with their epoch-making contributions, sometimes in their own words. Incidentally, the author tries to show that plagues and pestilences have been powerful biologic factors in controlling the growth of civilization.

The story is well and consecutively told and it passes before the eyes like a panorama.

The book is beautifully printed on good paper. Its perusal will satisfy those who wish to know all the pertinent facts, arranged in a readable style, rather than as a dry historical study.

MEDICAL NEWS

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Britain's Nursing Yeomanry

The British maintain an ambulance corps of women, an active part of which is the First Aid Nursing Yeomanry—a highly trained and efficient group of nurses who are prepared, at a moment's notice, to be rushed to the scene of any catastrophe, in war or peace. These women have a period of training, in camp, each year, in order to keep them on their toes.

The picture above shows a casualty being evacuated from a first aid station during a gas attack, at the recent camp at Pirbright, England.

Government Hospitals in Need of Medical Officers, Nurses, and Social Workers

The United States Civil Service Commission states that Government hospitals throughout the country, including those under the Veterans' Bureau, the Public Health Service, the Indian Service, and other branches, are in need of medical officers and nurses of various grades, and that Veterans' Bureau hospitals have vacancies in positions of psychiatric social worker and junior social worker.

Full information regarding examinations, salaries, etc., may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

Pennsylvania Medical Society Sponsors Periodic Examinations

The Public Relations Committee of the Medical Society of the State of Pennsylvania has prepared a useful blank for recording the results of periodic examinations, which any physician may profitably hand to his patients. On the first page is a straighforward statement of the purpose and value of such examinations. The second page is to be filled out by the person to be examined and sent to the examining physician 24 hours before the date set for the examination, so that he can study it.

It would be well to write to the Society, at 230 State St., Harrisburg, Pa., for a sample of these blanks, which are offered for sale at a nominal price.

Southern Medical Association

The Southern Medical Association will hold its annual meeting at Louisville, Ky., Nov. 11 to 14, inclusive. This meeting is always well worth while. Full details may be learned by writing to Mr. C. P. Loranz, Empire Bldg., Birmingham, Ala.

Opening in St. Louis

We are informed that there is an opening for a capable general practitioner in the metropolis of Missouri.

If interested, write for particulars to Louis O. Kloeckner, 2301 Pestalozzi St., St. Louis, Mo.

Send For This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physician's supplies, foods, etc., CLINICAL MEDICINE and SURGERY, North Chicago, Ill, will gladly forward request for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

When requesting literature, please specify whether you are a doctor of medicine, dentistry, medical student, a registered pharmacist, or a nurse.

H- 3 Storm Binder and Abdominal Supporter. 4-page folder by Dr. Katherine L. Storm.

H- 17 An Index of Treatment. Burnham Soluble Iodine Co.

H- 45 Vera-Perles of Sandelwood Comp. Paul Plessner Co.

H- 47 Campho-Phenique in Major and Minor Surgery. Campho-Phenique Company.

H- 49 The Calcreose Detail Man. Maltbie Chemical Co.

H- 95 Everything for the Sick. Lindsay Laboratories.

H-116 Hemo-Glycogen, The New Product Hemoglobin Compound and Liver Extract. Chappel Bros., Inc.

H-120 Building Resistance — Guiatonic. William R. Warner & Co., Ltd.

H-156 Siomine (Methenamine Tetraiodide). Pitman-Moore Company.

H-196 "Facts Worth Knowing." Intravenous Products Co. of America, Inc.

H-244 I Am Oxiphen. Pitman-Moore Co.

H-256 The Modern Way of Giving Digitalis. Upsher Smith Co.

H-258 Prophylaxis. August E. Drucker Co.

H-268 Eat Uncle Sam Health Food. Uncle Sam Breakfast Food Co.

H-269 Special Course No. VI Traumatic Surgery. Illinois Post Graduate Medical School, Inc.

H-271 The Intestinal Flora. The Battle Creek Food Company.

H-292 Acidosis and Infection—Alka Zane. William R. Warner & Co., Inc.

H-310 Conclusions from published research of the value of Ceanothyn as a hemostatic. Flint, Eaton & Co.

H-318 Blood Clinical and Laboratory Diagnosis. A book of 160 pages by Henry Irving Berger, M.D., Battle & Company.

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H-354 Getting the Most Out of Life. Stanco, Inc.

H-374 Table for Determining Date of Delivery. The Viburno Company, Inc.

H-383 Syrup Histosan Controls the Cough In Acute and Chronic Bronchitis, Pneumonia and other Pulmonary Diseases. Ernst Bischoff Co., Inc.

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H-404 Urotropin, the Intravenous Administration of the Original Formaldehyde-Liberating Urinary and Systemic Antispetic. Schering & Glatz.

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H-412 The New Colloidal Antacid. The Wander Co.

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H-418 Diphtheria Can Be Kept From Your Family by Protective Immunization. The National Drug Co.

H-424 When Chemists Turned from Gold to Drugs, Pantopon, Roche. Hoffman-La Roche, Inc.

H-425 Cerebrospinal Fever (Epidemic, Cerebrospinal Meningitis, Meningococcic Meningitis, Spotted Fever), Symptoms and Specific Treatment with Anti-Meningococcic Serum. The National Drug Co.

H-429 Eupinol, a distillate produced at a special temperature from the resinous wood of Pinus Palustris. The Tilden Company.

H-433 Changing From This to This. Reducing Glycosuria. The Harrower Laboratory, Inc.

H-436 Lydin, a New Standardized Masculine Hormone. The Harrower Laboratory.

H-443 AbilenA. Its Location, Discovery, Origin, Chemistry, Medicinal or Clinical Value and Uses. The Abilena Co.

H-446 Dependable Products. Pan-Secretin Co., Adreno-Spermin Co., Lydin and Pancreas Co. The Harrower Laboratory, Inc.

H-448 May 1930, Supplement to Net Price List containing new Pharmaceutical Specialties, Solu-Caps, Ointments, Syrups and Tablets. Sutliff & Case Co., Inc.

H-449 General Catalog of Medicinal Chemicals. Bilhuber-Knoll Corp.

H-452 The Hormone, November, 1930. The Harrower Laboratory, Inc.

H-455 AbilenA, The Ideal Cathartic Water. The AbilenA Co.

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H-459 These Doctors Prescribed Ultra-Violet. The Burdick Corporation.

H-460 Burdick Light Bath Cabinets. The Burdick Corporation.

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H-470 To Supplement Your Treatment. The Wm. S. Merrell Company.

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